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ABSTRACT

This report describes the post-closure vocational status of a random sample of five separate Minnesota Division of Vocational Rehabilitation program groups: (1) physically disabled; (2) mentally ill; (3) mentally retarded; (4) public assistance recipients; and (5) workmen's compensation recipients. The study, based on benefit/cost theory, demonstrates the continuing economic benefits which result from the investment of state and federal funds in the rehabilitation of the disabled. Conclusions indicate that: (1) at the time of followup, 75% of the rehabilitants studied were productively engaged in competitive or sheltered employment or as homemakers; (2) 60% of the rehabilitants formerly on Public Assistance were removed from the welfare rolls; and (3) economic benefits in terms of increased earnings and reduced welfare payments equalled the cost of all rehabilitation services within a period of less than one year. The report concludes that rehabilitation programs are a profitable and worthy investment. (IL)

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THE VOCATIONAL STATUS OF MICHIGAN REHABILITANTS OF FISCAL YEAR 1969

TWO YEARS AFTER CASE CLOSURE

THE REPORT IN BRIEF

The Results of a Follow-Up Study and Benefit/Cost Analysis
Conducted by the Program Analysis, Planning, and Development
Section of the Division of Vocational Rehabilitation

Michigan Department of Education
Division of Vocational Rehabilitation

February, 1971

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FORWARD

AN EXPLANATION OF BENEFIT/COST THEORY

Inasmuch as this study is based on benefit/cost theory, an explanation of this concept is in order.

Basically, the benefit/cost approach provides a measurement of the effectiveness of government programs. In the Vocational Rehabilitation program concept, government makes an initial investment of public money on a specified manpower population with the intent that by doing so, it will no longer have to invest public monies on that population after completion of prescription services.

The benefit/cost measurement in Vocational Rehabilitation consists of assessing the costs of government required to prepare and place a client group in employment; computing the per annum earning power of the average individual in that group over the remaining period of normal work expectancy; and then dividing the resultant aggregate by the original governmental costs required at the time of rehabilitation. This is then expressed in terms of a ratio--which in the current study--translates typically into the following general formulation:

> "For each $1 of cost required of the government in terms of client needs and/or rehabilitation costs, the individual will generate earning power during the remaining years of his work expectancy in the amount of $25."

A number of adjustment and discount factors are technically processed throughout the formulation of benefit/cost analysis consistent with the practice of economists in employing this approach. The following is an illustration of a benefit/cost treatment of data:

> A given group of rehabilitants are studied with regard to their individual earnings covering their employment experience for the entire 12 months prior to their initiation upon the rehabilitation process. From this data, a per weekly earnings average for the group is computed. This figure assumes that, without rehabilitation, the earnings average of the group could be at least duplicated in any other year and, hence, this dollar amount is a factor to be treated as a minus factor in estimating earnings improvement as a result of rehabilitation. For the study group in question, the weekly earnings average for the 12 months prior to rehabilitation was $33.
>
> Upon the completion of rehabilitation, the study group in question may then be found to be earning $86 per week. However, the follow-up study is concerned with this same group's earning power 24 months after rehabilitation. Hence, any fall-out on the part of the originally-rehabilitated group naturally depresses the earnings average two years later. In the study group in question, the fall-out factor caused the earnings average to reduce to the figure of $76 per week.

The increment gain in the group's economic status is the difference between its original earnings average of $33 and its earnings average two years after rehabilitation of $76, or a net increment gain of $43. This $43 per week gain is then multiplied by 52 for the per annum gain, and then by the figure 30 to represent the remaining potential lifetime earnings for this group of rehabilitants. However, each successive year in the 30-year sequence is actually treated with a six percent reduction of the residual. This is a discount technicality applied by economists in the more sophisticated data-treatment aspects of this theory and has been utilized by our research team.

In any event, the increased earning power of the average group member for 30 years, with various discounts factored in, would aggregate $47,750. Meanwhile, the cost of government to rehabilitate this average group member would amount to $1,750. This consists roughly of some $500 required for the purchase of cost services for the client, and $1,250 for administrative costs including housing, supervision, counseling services, etc. The government costs of $1,750 is now divided into the lifetime increased earning costs of $43,750 and the cost/benefit ratio is, therefore, 1 to 25.

THE VOCATIONAL STATUS OF MICHIGAN REHABILITANTS OF FISCAL YEAR 1969 TWO YEARS AFTER CASE CLOSURE

SUMMARY

INTRODUCTION

In the period from July 1, 1968 through June 30, 1969 (Fiscal Year 1969) the Michigan Department of Education's Division of Vocational Rehabilitation (DVR), rehabilitated 6139 vocationally handicapped persons. Another 20,629 persons were receiving services as the year ended on June 30, 1969.

In late 1970 DVR conducted a follow-up survey and benefit/cost analysis involving the FY 1969 rehabilitants. The average length of time from case closure to follow-up was two years. The study was a repeat and extension of a similar follow-up survey of Fiscal Year 1968 rehabilitants made 12 months before. The questionnaire responses are on file at the Division of Vocational Rehabilitation State Office.

CONCLUSIONS

The study demonstrates the continuing economic benefits which result from the investment of state and federal funds in the rehabilitation of the disabled. For example:

. At the time of follow-up, 75% of the 1968-69 rehabilitants were still productively engaged in competitive or sheltered employment or as homemakers.

. Sixty percent of the rehabilitants who named Public Assistance as their primary source of support at the time of acceptance for service were removed from welfare rolls by rehabilitation and had maintained their independent status at the time of follow-up.

. These welfare rehabilitants will return in decreased dependence upon public assistance approximately 2½ times the value of their rehabilitation costs.

. A benefit/cost ratio projected for only two years after rehabilitation shows

an average return of $2.86 of value for every $1.00 in costs. Within a period of less than one year, the average rehabilitant has achieved a benefit/cost ratio of 1:1; that is, the economic benefits in terms of increased earnings and reduced welfare payments equaled the cost of all rehabilitation services.

Although the unemployment rate for the state during December 1970 was twice that which was obtained during December, 1969 (7.8% versus 3.9%) it is noteworthy that unemployment did not affect rehabilitants in any greater proportion than was found in the general population. One should keep in mind that the present survey was conducted during December, 1970 and January, 1971 during the height of a devastating automotive strike, high unemployment and a virtual explosion of the state's welfare caseload.

One last word: It must be remembered that the benefit/cost approach to program evaluation measures only economic benefits and not humanitarian or social benefits which may accrue as the result of rehabilitation services. For many rehabilitants, the improvement in personal well-being, and family stability is perhaps a more ample justification for the existence of rehabilitation services than the economic benefits which derive. For other potential clients a crucial issue may be the cost to society (i.e., welfare dependence, institutionalization, crime) which may result if services are not provided to persons in need. While such benefits are largely unmeasureable, they should not be ignored in considering the potential outcome of rehabilitation.

The general conclusion that rehabilitation programs are a profitable and worthy investment of public funds seems clear.

METHODOLOGY

Five separate program groups were studied. Samples were randomly selected from each group, and sample sizes were calculated to provide statistically reliable estimates. Approximately 1600 persons were sought and over 1100 responded by mail or phone.

Group 1 - The Physically Disabled comprised over 70% of all rehabilitants and were a heterogenous group with characteristics similar to rehabilitants in general. Almost half had orthopedic or absence-amputation disabilities. One-fifth had more than one disability. Over two-thirds were male. When accepted for services, the average age was 31.

Group 2 - The Mentally Ill had the highest percentage of persons with 12 or more years of education (54%). About 30% came to DVR from state institutions. Average age at acceptance was 30. Half of the group were female.

Group 3 - The Mentally Retarded were almost exclusively a student group referred by the schools. The average age at acceptance was 19. Most of these clients were living with their parents and had little working experience.

Group 4 - The Public Assistance Recipients (at time of acceptance for services) were middle aged. Their average age was 37, and almost half were female. Only one-fourth had completed 12 grades of school. Nearly 40% were widowed, divorced, or separated, and almost one-third had more than one disability.

Group 5 - The Workmen's Compensation Recipients (at time of acceptance for services) had an average age of 35. Almost 90% had disabilities described as orthopedic or absence-amputation, and almost 90% were male.

MAJOR FINDINGS

The findings are illustrated concisely in Figures 1 to 18, pp. 34-51 of the body of the report. The following statements provide a brief overview.

1. Productive Status. At the time of follow-up, 75% of the FY 1969 Rehabilitants were productively engaged in competitive or sheltered employment, or as homemakers. The rate productively engaged was much higher than when the rehabilitants were accepted for rehabilitation services (28%). Rates for the sub-programs were as follows: Physically Disabled (77%), Mentally Ill (70%), Mentally Retarded (71%), Public Assistance Recipients (62%), Workmen's Compensation Recipients (71%).

2. Numbers in Labor Force. About 80% of the Fiscal Year 1969 Rehabilitants considered themselves in the labor force (employed or seeking employment).

The Mentally Ill and Public Assistance Recipients had lower rates in the labor force than the other groups, apparently because they included a higher proportion of women (50%).

3. Reasons not in Labor Force. Approximately 80% of those rehabilitants who reported themselves not in the labor force at follow-up reported they were either homemakers, or too disabled to work. Less than 20% of those not in the labor force were retired, were students, or were out of the labor market for other reasons.

4. Employment Status for Rehabilitants in the Labor Force. For those persons who considered themselves in the labor force, the overall employment rate for Fiscal Year 1969 Rehabilitants was 82%. The values for the study groups were: Physically Disabled (83%), Mentally Ill (78%), Mentally Retarded (76%), Public Assistance Recipeints (73%), Workmen's Compensation Recipients (87%). All of these levels represent much higher employment participation than was the case before the rehabilitants received services.

The percentage of rehabilitants unemployed rose from 9% in the previous study to 18% in the present study. The unemployment rate for all Michigan workers rose from 3.9% to 7.8% in the same period. In both cases, the rates doubled. The clientele of DVR are by definition a marginal group in the employment market, and the higher rate of unemployment in the current study is interpreted as a reflection of the change in the general labor market. The effects of the general economic status of the State are unmistakable in the results of the study, and must be borne in mind when evaluating their meaning.

5. Percent Working Full Time. Approximately 85% of employed rehabilitants were working full time. The proportions ranged from 96% (Workmen's Compensation Recipients) to 82% (Public Assistance Recipients).

6. Type of Employment. About 40% of Fiscal Year 1969 Rehabilitants employed at follow-up were found in professional-technical or clerical-sales occupations. Another 20% were in service operations, and the remainder were in industrial positions. There were observable differences among the groups in types of employment. For all of the study groups, those employed at follow-up tended to be at higher skill levels than those who had held employment at some time prior to rehabilitation.

7. Job Satisfaction. About 70% of all the respondents reported they were Very Satisfied or Somewhat Satisfied with their employment. Approximately 15% reported they were Somewhat Dissatisfied or Very Dissatisfied. The remainder gave a neutral response. The pattern was generally consistent among the groups, but the Workmen's Compensation recipients tended to report less satisfaction.

8. Number of Jobs Held Since Rehabilitation. Among employed rehabilitants, over 80% held one or two jobs during the period from case closure to follow-up. This was interpreted as a high degree of employment stability. The Mentally Ill group tended to show more job changes than the other groups.

9. Percentage of Time Employed Before and After Rehabilitation. All of the study groups showed a greater percentage of time employed in the 24 months after rehabilitation than in the 12 months before rehabilitation. For all Fiscal Year 1969 rehabilitants, time employed before rehabilitation was approximately 35%, and time employed after rehabilitation was approximately 75%. The calculations did not include persons listed as students at time of acceptance for services.

10. Earnings for Employed Rehabilitants. Average weekly earnings for those employed at various stages in the rehabilitation process (acceptance, closure, after rehabilitation, and at follow-up) showed regular increases. Average weekly

earnings at follow-up for employed Fiscal Year 1969 rehabilitants were $114. Earnings per week by program group at follow-up were: Physically Disabled ($120), Mentally Ill ($106), Mentally Retarded ($93), Public Assistance Recipients ($100), Workmen's Compensation Recipients ($139).

11. Receipt of Public Assistance. Sixty percent of the Public Assistance Recipients at time of acceptance were removed from welfare rolls by rehabilitation and maintained their independent status at the time of follow-up. A small proportion of other rehabilitants, not receiving Public Assistance at acceptance, were found to be obtaining assistance at follow-up. This finding is interpreted to reflect the fact that some rehabilitants have become too disabled to work. It is also viewed as another result of the relatively poor economic status of the State at the time the survey was made. The number of persons receiving Public Assistance throughout Michigan increased dramatically (67%), during the 12 months between the studies.

12. Reactions to Services. Over 40% of all respondents stated they found training they received by DVR helpful to them. About one-third mentioned counseling, and lower percentages mentioned other services. About 15% reported they received no services which were helpful.

About 75% of the respondents reported they were Very Satisfied or Somewhat Satisfied with their DVR services, 11% were neutral, and 15% reported themselves Somewhat Dissatisfied or Very Dissatisfied.

Approximately 30% sought more services, and most of the requests were for training or job placement assistance.

The Workmen's Compensation Recipients tended to be less satisfied with their services than any other group. The fact that this group had a higher rate of

employment and higher earnings at follow-up than the other groups would suggest that the response of satisfaction or dissatisfaction with services is more related to the client's perception of his personal circumstances rather than to objective measures of employment level, income, etc. Reported satisfaction for the five study groups is summarized in Table S-1.

TABLE S-1

REPORTED SATISFACTION WITH SERVICES FOR FY 1969

REHABILITANTS BY PROGRAM. (IN PERCENT)

	Physically Disabled	Mentally Ill	Mentally Retarded	Public Assistance	Workmen's Compensation
Satisfaction	74	70	78	70	60
Neutral	12	14	2	16	10
Dissatisfaction	14	16	20	14	30

BENEFIT/COST ESTIMATES

Discussion and Method

Benefit/cost analysis provides a means to estimate the economic impact of vocational rehabilitation programs. It seeks to make explicit the economic benefits and costs which derive from the program. The Michigan Division of Vocational Rehabilitation utilizes a benefit/cost model which is intended to reflect the relationship between the economic gains which result from rehabilitation and the program costs of rehabilitation.

The general design of the model is:

$$\text{Ratio of Benefits to Costs} = \frac{\text{Total dollar value of all benefits}}{\text{Total dollar value of all costs}}$$

Two major objectives of vocational rehabilitation are (1) to increase client earnings, and (2) to decrease payments of public assistance to clients. The follow-up study provides data concerning the average earnings of rehabilitants before and after rehabilitation. It also provides data concerning the amounts of public assistance received by rehabilitants before and after rehabilitation. The before-after differences may be projected over the expected working life of the individual rehabilitant or the particular sample group being used.

The formula may then be expressed as follows:

$$R \text{ (ratio)} = \frac{B_1 + B_2}{C_1}$$

where B_1 = Estimated net increase in lifetime earnings of rehabilitants

B_2 = Estimated net decrease in lifetime public assistance payments to rehabilitants

C_1 = The costs of rehabilitation, including direct service costs, and costs of counseling, administration, and facilities.

Adjustments are made in the overall calculations to estimate such factors as expected future losses of employment and earnings increases. In addition, a discount rate is used in order to attribute less value to future projections than

to current earnings and costs. It is possible to project benefits over less than the working lifetime, and a projection for only two years is included in this report. Persons interested in a more detailed understanding of the calculations should consult Chapter V (pp.54-75) of the body of the report and the references given there.

Care should be used in interpreting the results of benefit/cost calculations. They are estimates, and although based upon the best data currently available, they utilize estimated variables. They also involve specific sets of assumptions. Different B/C ratios obtain if the perspective is viewed as that of the individual, various levels of government, or society as a whole. In addition, benefit/cost ratios do not measure humanitarian or intangible benefits such as improved personal well-being, family stability, or lower crime rates.

The DVR benefit/cost model is limited to the rehabilitation agency perspective. It includes only two stated benefits and does not at this time include benefits which may accrue to persons provided services but not rehabilitated, benefits to persons rehabilitated as homemakers, persons removed from dependence upon state institutions, or possible benefits to family members other than the rehabilitant.

Benefit/Cost Estimates

Utilizing the formula given above the following values were calculated for the DVR benefit/cost ratios. Costs of purchased client services and estimated total rehabilitation costs are also given.

Table S-1

ESTIMATED BENEFIT/COST RATIOS AND REHABILITATION COSTS BY PROGRAM

	Physical Disabled	Mentally Ill	Mentally Retarded	Public Assist.	Workmen's Comp.	All FY 1969 Rehabs
B/C Ratio:						
Working Life	$ 24.88	$ 26.31	$ 30.43	$ 18.07	$ 39.34	$ 25.85
Two Years	2.69	2.98	3.53	2.43	4.57	2.86
Service Costs	504.54	376.16	412.07	492.39	352.76	475.51
Total Costs	1,796.16	1,339.13	1,466.96	1,752.91	1,255.83	1,692.81

An example of an interpretation of the benefit/cost ratios would be: For the Physical Disability group it is estimated that each dollar spent for vocational rehabilitation will result in a total in increased earnings and decreased public assistance payments of $24.88 over the working lifetime of the "average" group member.

Among the sample groups, the Workmen's Compensation Recipients ratio is relatively high. This may be attributed to the fact that service costs to DVR are relatively low, and employment retention and earnings after rehabilitation are relatively high. The ratio for Public Assistance Recipients is relatively low because service costs were relatively high, while earnings after rehabilitation and expected work life were relatively low. However, for this group it was estimated that approximately 2½ times the cost of rehabilitation would be realized in decreases in public assistance payments--a significant savings of public funds.

It should also be noted that a ratio projected only two years after rehabilitation shows an average return of $2.86 for every $1.00 in costs. Within a period of less than one year, the average rehabilitant had achieved a benefit/cost ratio of 1:1; that is, the economic benefits in terms of earnings and reduced welfare payments equal the cost of all rehabilitation services.

ACHIEVEMENT OF OBJECTIVES

The following comments relate the results of the study to the objectives of the agency as stated in the report.

1. To improve the employment status of handicapped persons. In comparisons of pre-rehabilitation and post-rehabilitation status, the rehabilitants of Fiscal Year 1969 showed marked increases in number in productive status, numbers employed, percentage of time employed, and numbers in occupations requiring skills. Most rehabilitants reported satisfaction with their post-rehabilitation jobs, and a

very high percentage of employed rehabilitants were working full time. In addition, most respondents recalled DVR services as helpful, and indicated satisfaction with their services.

2. To provide stable client employment. A high percentage of rehabilitants were employed at the time of follow-up, and most had been employed with one employer since closure. Of those not employed, most had withdrawn from the labor market to become homemakers or because they were too disabled to work. Percentage of time employed during the follow-up period was higher than in the period before rehabilitation.

Employment rate at follow-up among the Fiscal Year 1969 rehabilitants was not as high as for Fiscal Year 1968 rehabilitants in a study conducted 12 months earlier. The difference was consistent with the lower rates of employment among all Michigan workers at the time the current study was made.

3. To increase client earnings. Earnings averaged over all rehabilitants (whether working or not) increased significantly from the time of acceptance for rehabilitation services to case closure. The average remained high at follow-up even though some persons had left employment and had no earnings. The change represents increased productivity for the group. Those who remained in employment at follow-up were earning more than those employed at closure and much more than those few who were employed at acceptance.

The numbers of persons receiving Public Assistance when accepted for services was greatly reduced by the time of case closure, and remained approximately the same at follow-up two years later. A small percentage of other rehabilitants, not receiving Public Assistance at acceptance, were unable to maintain their employment gains. They were found receiving Public Assistance at closure, usually due to increased disability.

4. To provide services to specified target groups. Services to five program populations were examined in this study. All of the groups showed

gains in employment status from before to after rehabilitation. The gains were not uniform, and some of the client characteristics which may be related to the differences in outcomes were observed. They include higher age levels, presence of more than one disability, and lower educational background. All of the groups were served with significant client success and with favorable benefit/cost ratios.

5. To achieve favorable benefit/cost ratios for agency operations. Benefit/cost ratios based upon increased rehabilitant earnings and decreased dependence upon Public Assistance remain very favorable for the total rehabilitation program. They are slightly below the estimates of the previous year due to improved cost data, and conservative estimates of the variables used in the calculations. They differ markedly among sub-program groups as might be expected. However, the ratios remain very favorable for all groups. The inclusion of other benefits such as decreased dependence upon public institutions, homemaker services, and the humanitarian values of rehabilitation would result in even more generous estimates.

6. To increase the educational achievement level of rehabilitants. Progress toward this objective is not reported in this study as this goal was only recently adopted by the Vocational Rehabilitation Service and was not part of the rehabilitation plan of service at the time these clients were rehabilitated. Educational achievement will become a part of our assessment efforts in future years as today's rehabilitants are followed-up. All clients will have an opportunity to achieve ar 8th and/or 12th grade proficiency as such achievement is regarded as necessary to obtaining and retaining employment in our society.

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TWO YEARS AFTER CASE CLOSURE

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PREFACE

In late 1969 the Michigan Department of Education, Division of Vocational Rehabilitation, conducted a Follow-up Study of rehabilitants whose cases were closed in the year from July 1, 1967 to June 30, 1968. The results of the study and a subsequent benefit/cost analysis which utilized the data were reported in March, 1970, under the titles The Vocational Status of Michigan Rehabilitants Two Years After Case Closure, and A Benefit/Cost Analysis of Vocational Rehabilitation Programs in the State of Michigan.

The report which follows provides an updating and further development of the studies. It describes the post-closure vocational status of rehabilitants whose cases were closed in the next following fiscal year, July 1, 1968 to June 30, 1969. In addition, it extends the analysis to selected subgroups within the total population of rehabilitants: the physically handicapped, the mentally ill, the mentally retarded, public assistance recipients, and workmen's compensation recipients. The results of the study provide the most extensive assessment to date of the impact of rehabilitation services upon the lives of those who are served by the Michigan Department of Education's Division of Vocational Rehabilitation.

The study was conducted and reported by Robert D. Struthers, under the direction of Gabriel Cifor, and L. A. Reese, Chief, Program Analysis, Planning and Development Section, Michigan Division of Vocational Rehabilitation.

CONTENTS

		Page
	INDEX TO TABLES	iii
	INDEX TO FIGURES	v
	SUMMARY	1
I.	INTRODUCTION	14
II.	METHOD	14
III.	THE POPULATION GROUPS	17
IV.	A. SURVEY RESULTS.	24
	B. SURVEY RESULTS IN FIGURES	33
V.	BENEFIT/COST ANALYSIS	54
Appendix A.	SURVEY MATERIALS	76
Appendix B.	SAMPLE DESCRIPTION TABLES	80
Appendix C.	RESULT TABLES	91
Appendix D.	BENEFIT/COST MODEL	105

INDEX TO TABLES

		Page
I-1.	Response Rates for Five Program Groups	17
V-1.	Case Service Costs for Five Program Groups	67
V-2.	Benefit/Cost Ratios for Homemakers	71
V-3.	Benefit/Cost Ratios for Fiscal Year 1969 Rehabilitants by Program	75

APPENDIX B

1.	Major Disability at Acceptance for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	81
2.	Sex for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	82
3.	Age at Acceptance for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	83
4.	Race for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	84
5.	Education at Acceptance for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	85
6.	Marital Status at Acceptance for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	86
7.	Receipt of Public Assistance at Acceptance for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	87
8.	Referral Source for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	88
9.	Primary Source of Support at Acceptance for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	89
10.	Employment Status at Acceptance for Fiscal Year 1969 Rehabilitants by Program. Total Sample and Respondents	90

APPENDIX C

1a	Employment Status Two Years After Rehabilitation for Fiscal Year 1969 Rehabilitants by Program	92
1b	Employment Status at Closure for 1969 Rehabilitants by Program	93

Page

2. Labor Force Status Two Years After Rehabilitation For Fiscal year 1969 Rehabilitants by Program 93

3. Reason Not in Labor Force Two Years After Rehabilitation For Fiscal Year 1969 Rehabilitants Who are Not in the Labor Force by Program 93

4. Employment Status Two Years After Rehabilitation for Fiscal Year 1969 Rehabilitants Who are in the Labor Force 94

5. Percent Working Part Time Two Years After Rehabilitation for Employed Fiscal Year 1969 Rehabilitants by Program 94

6. Type of Employment Before Rehabilitation, at Closure, and Two Years After Rehabilitation for Fiscal Year 1969 Rehabilitants by Program 95

7. Reported Job Satisfaction at Follow-Up for Fiscal Year 1969 Rehabilitants 96

8. Number of Jobs Held Since Closure for Presently Employed Fiscal Year 1969 Rehabilitants by Program 97

9. Percentage of Time Employed Before and After Rehabilitation for Fiscal Year 1969 Rehabilitants by Program 98

10. Weekly Earnings per Rehabilitant for Fiscal Year 1969 Rehabilitants at Acceptance for Services, Case Closure, and Follow-Up by Program 99

11. Average Weekly Earnings for Employed Fiscal Year 1969 Rehabilitants Before Rehabilitation, at Acceptance for Services, at Closure, and After Rehabilitation 99

12. Percentages of Fiscal Year 1969 Rehabilitants Receiving Public Assistance at Acceptance, at Closure, and at Follow-Up Two Years Later by Program 100

13. Selected Other Income Sources Reported Two Years After Rehabilitation by Fiscal Year 1969 Rehabilitants by Program 101

14. Services Recalled as Helpful by Rehabilitants by Program 102

15. Reported Satisfaction with Services for Fiscal Year 1969 Rehabilitants by Program 103

16. Percentage of Fiscal Year 1969 Rehabilitants Expressing Desire for Additional Services Two Years After Rehabilitation by Program 104

17. Types of Rehabilitation Services Requested by Fiscal Year 1969 Rehabilitants by Program 104

INDEX TO FIGURES

Page

1. Percentages of Fiscal Year 1969 Rehabilitants in Competitive Employment, Sheltered Employment, Homemaking and Unemployment at Acceptance, Closure and Follow-Up Two Years Later 34

2. Labor Force Status Two Years After Rehabilitation for Fiscal Year 1969 Rehabilitants by Program 35

3. Reason Not in Labor Force Two Years After Rehabilitation for Fiscal Year 1969 Rehabilitants Who Are Not in Labor Force by Program 36

4. Employment Status Two Years After Rehabilitation for Fiscal Year 1969 Rehabilitants Who Were in the Labor Force by Program 37

5. Percent Working Full Time Two Years After Rehabilitation for Employed Fiscal Year 1969 Rehabilitants by Program 38

6. Type of Employment Two Years After Rehabilitation for Employed Fiscal Year 1969 Rehabilitants by Program 39

7. Percentages of Employed Fiscal Year 1969 Rehabilitants in Different Types of Occupations Before Rehabilitation and Two Years After Rehabilitation by Program 40

8. Reported Job Satisfaction for Fiscal Year 1969 Rehabilitants by Program 41

9. Number of Jobs Held Since Closure for Fiscal Year 1969 Rehabilitants Presently Employed by Program 42

10. Percentage of Time Employed Before and After Rehabilitation for Fiscal Year 1969 Rehabilitants by Program 43

11. Weekly Earnings per Rehabilitant for Fiscal Year 1969 Rehabilitants at Acceptance for Services, Case Closure, and Follow-Up by Program 44

12. Average Weekly Earnings for Fiscal Year 1969 Rehabilitants Employed at Acceptance for Services, at Closure, and After Rehabilitation 45

13. Percentages of Fiscal Year 1969 Rehabilitants Receiving Public Assistance at Acceptance, at Closure and at Follow-Up Two Years Later by Program 46

14. Selected Other Income Sources Reported Two Years After Rehabilitation by Fiscal Year 1969 Rehabilitants by Program 47

15. Services Recalled as Helpful by Rehabilitants by Program 48

16. Reported Satisfaction with Services for Fiscal Year 1969 Rehabilitants by Program 49

INDEX TO FIGURES continued

Page

17. Percentage of Fiscal Year 1969 Rehabilitants Expressing Desire for Additional Services Two Years After Rehabilitation by Program 50

18. Types of Rehabilitation Services Requested by Fiscal Year 1969 Rehabilitants by Program 51

19. Comments by Rehabilitants 52

FORWARD

AN EXPLANATION OF BENEFIT/COST THEORY

Inasmuch as this study is based on benefit/cost theory, an explanation of this concept is in order.

Basically, the benefit/cost approach provides a measurement of the effectiveness of government programs. In the Vocational Rehabilitation program concept, government makes an initial investment of public money on a specified manpower population with the intent that by doing so, it will no longer have to invest public monies on that population after completion of prescription services.

The benefit/cost measurement in Vocational Rehabilitation consists of assessing the costs of government required to prepare and place a client group in employment; computing the per annum earning power of the average individual in that group over the remaining period of normal work expectancy; and then dividing the resultant aggregate by the original governmental costs required at the time of rehabilitation. This is then expressed in terms of a ratio--which in the current study--translates typically into the following general formulation:

> "For each $1 of cost required of the government in terms of client needs and/or rehabilitation costs, the individual will generate earning power during the remaining years of his work expectancy in the amount of $25."

A number of adjustment and discount factors are technically processed throughout the formulation of benefit/cost analysis consistent with the practice of economists in employing this approach. The following is an illustration of a benefit/cost treatment of data:

> A given group of rehabilitants are studied with regard to their individual earnings covering their employment experience for the entire 12 months prior to their initiation upon the rehabilitation process. From this data, a per weekly earnings average for the group is computed. This figure assumes that, without rehabilitation, the earnings average of the group could be at least duplicated in any other year and, hence, this dollar amount is a factor to be treated as a minus factor in estimating earnings improvement as a result of rehabilitation. For the study group in question, the weekly earnings average for the 12 months prior to rehabilitation was $33.
>
> Upon the completion of rehabilitation, the study group in question may then be found to be earning $86 per week. However, the follow-up study is concerned with this same group's earning power 24 months after rehabilitation. Hence, any fall-out on the part of the originally-rehabilitated group naturally depresses the earnings average two years later. In the study group in question, the fall-out factor caused the earnings average to reduce to the figure of $76 per week.

The increment gain in the group's economic status is the difference between its original earnings average of $33 and its earnings average two years after rehabilitation of $76, or a net increment gain of $43. This $43 per week gain is then multiplied by 52 for the per annum gain, and then by the figure 30 to represent the remaining potential lifetime earnings for this group of rehabilitants. However, each successive year in the 30-year sequence is actually treated with a six percent reduction of the residual. This is a discount technicality applied by economists in the more sophisticated data-treatment aspects of this theory and has been utilized by our research team.

In any event, the increased earning power of the average group member for 30 years, with various discounts factored in, would aggregate $47,750. Meanwhile, the cost of government to rehabilitate this average group member would amount to $1,750. This consists roughly of some $500 required for the purchase of cost services for the client, and $1,250 for administrative costs including housing, supervision, counseling services, etc. The government costs of $1,750 is now divided into the lifetime increased earning costs of $43,750 and the cost/benefit ratio is, therefore, 1 to 25.

THE VOCATIONAL STATUS OF MICHIGAN REHABILITANTS OF FISCAL YEAR 1969 TWO YEARS AFTER CASE CLOSURE

SUMMARY

INTRODUCTION

In the period from July 1, 1968 through June 30, 1969 (Fiscal Year 1969) the Michigan Department of Education's Division of Vocational Rehabilitation (DVR), rehabilitated 6139 vocationally handicapped persons. Another 20,629 persons were receiving services as the year ended on June 30, 1969.

In late 1970 DVR conducted a follow-up survey and benefit/cost analysis involving the FY 1969 rehabilitants. The average length of time from case closure to follow-up was two years. The study was a repeat and extension of a similar follow-up survey of Fiscal Year 1968 rehabilitants made 12 months before. The questionnaire responses are on file at the Division of Vocational Rehabilitation State Office.

CONCLUSIONS

The study demonstrates the continuing economic benefits which result from the investment of state and federal funds in the rehabilitation of the disabled. For example:

. At the time of follow-up, 75% of the 1968-69 rehabilitants were still productively engaged in competitive or sheltered employment or as homemakers.

. Sixty percent of the rehabilitants who named Public Assistance as their primary source of support at the time of acceptance for service were removed from welfare rolls by rehabilitation and had maintained their independent status at the time of follow-up.

. These welfare rehabilitants will return in decreased dependence upon public assistance approximately 2½ times the value of their rehabilitation costs.

. A benefit/cost ratio projected for only two years after rehabilitation shows

an average return of $2.86 of value for every $1.00 in costs. Within a period of less than one year, the average rehabilitant has achieved a benefit/cost ratio of 1:1; that is, the economic benefits in terms of increased earnings and reduced welfare payments equaled the cost of all rehabilitation services.

Although the unemployment rate for the state during December 1970 was twice that which was obtained during December, 1969 (7.8% versus 3.9%) it is noteworthy that unemployment did not affect rehabilitants in any greater proportion than was found in the general population. One should keep in mind that the present survey was conducted during December, 1970 and January, 1971 during the height of a devastating automotive strike, high unemployment and a virtual explosion of the state's welfare caseload.

One last word: It must be remembered that the benefit/cost approach to program evaluation measures only economic benefits and not humanitarian or social benefits which may accrue as the result of rehabilitation services. For many rehabilitants, the improvement in personal well-being, and family stability is perhaps a more ample justification for the existence of rehabilitation services than the economic benefits which derive. For other potential clients a crucial issue may be the cost to society (i.e., welfare dependence, institutionalization, crime) which may result if services are not provided to persons in need. While such benefits are largely unmeasureable, they should not be ignored in considering the potential outcome of rehabilitation.

The general conclusion that rehabilitation programs are a profitable and worthy investment of public funds seems clear.

METHODOLOGY

Five separate program groups were studied. Samples were randomly selected from each group, and sample sizes were calculated to provide statistically reliable estimates. Approximately 1600 persons were sought and over 1100 responded by mail or phone.

Group 1 - The Physically Disabled comprised over 70% of all rehabilitants and were a heterogenous group with characteristics similar to rehabilitants in general. Almost half had orthopedic or absence-amputation disabilities. One-fifth had more than one disability. Over two-thirds were male. When accepted for services, the average age was 31.

Group 2 - The Mentally Ill had the highest percentage of persons with 12 or more years of education (54%). About 30% came to DVR from state institutions. Average age at acceptance was 30. Half of the group were female.

Group 3 - The Mentally Retarded were almost exclusively a student group referred by the schools. The average age at acceptance was 19. Most of these clients were living with their parents and had little working experience.

Group 4 - The Public Assistance Recipients (at time of acceptance for services) were middle aged. Their average age was 37, and almost half were female. Only one-fourth had completed 12 grades of school. Nearly 40% were widowed, divorced, or separated, and almost one-third had more than one disability.

Group 5 - The Workmen's Compensation Recipients (at time of acceptance for services) had an average age of 35. Almost 90% had disabilities described as orthopedic or absence-amputation, and almost 90% were male.

MAJOR FINDINGS

The findings are illustrated concisely in Figures 1 to 18, pp. 34-51 of the body of the report. The following statements provide a brief overview.

1. Productive Status. At the time of follow-up, 75% of the FY 1969 Rehabilitants were productively engaged in competitive or sheltered employment, or as homemakers. The rate productively engaged was much higher than when the rehabilitants were accepted for rehabilitation services (28%). Rates for the sub-programs were as follows: Physically Disabled (77%), Mentally Ill (70%), Mentally Retarded (71%), Public Assistance Recipients (62%), Workmen's Compensation Recipients (71%).

2. Numbers in Labor Force. About 80% of the Fiscal Year 1969 Rehabilitants considered themselves in the labor force (employed or seeking employment).

The Mentally Ill and Public Assistance Recipients had lower rates in the labor force than the other groups, apparently because they included a higher proportion of women (50%).

3. Reasons not in Labor Force. Approximately 80% of those rehabilitants who reported themselves not in the labor force at follow-up reported they were either homemakers, or too disabled to work. Less than 20% of those not in the labor force were retired, were students, or were out of the labor market for other reasons.

4. Employment Status for Rehabilitants in the Labor Force. For those persons who considered themselves in the labor force, the overall employment rate for Fiscal Year 1969 Rehabilitants was 82%. The values for the study groups were: Physically Disabled (83%), Mentally Ill (78%), Mentally Retarded (76%), Public Assistance Recipeints (73%), Workmen's Compensation Recipients (87%). All of these levels represent much higher employment participation than was the case before the rehabilitants received services.

The percentage of rehabilitants unemployed rose from 9% in the previous study to 18% in the present study. The unemployment rate for all Michigan workers rose from 3.9% to 7.8% in the same period. In both cases, the rates doubled. The clientele of DVR are by definition a marginal group in the employment market, and the higher rate of unemployment in the current study is interpreted as a reflection of the change in the general labor market. The effects of the general economic status of the State are unmistakable in the results of the study, and must be borne in mind when evaluating their meaning.

5. Percent Working Full Time. Approximately 85% of employed rehabilitants were working full time. The proportions ranged from 96% (Workmen's Compensation Recipients) to 82% (Public Assistance Recipients).

6. Type of Employment. About 40% of Fiscal Year 1969 Rehabilitants employed at follow-up were found in professional-technical or clerical-sales occupations. Another 20% were in service operations, and the remainder were in industrial positions. There were observable differences among the groups in types of employment. For all of the study groups, those employed at follow-up tended to be at higher skill levels than those who had held employment at some time prior to rehabilitation.

7. Job Satisfaction. About 70% of all the respondents reported they were Very Satisfied or Somewhat Satisfied with their employment. Approximately 15% reported they were Somewhat Dissatisfied or Very Dissatisfied. The remainder gave a neutral response. The pattern was generally consistent among the groups, but the Workmen's Compensation recipients tended to report less satisfaction.

8. Number of Jobs Held Since Rehabilitation. Among employed rehabilitants, over 80% held one or two jobs during the period from case closure to follow-up. This was interpreted as a high degree of employment stability. The Mentally Ill group tended to show more job changes than the other groups.

9. Percentage of Time Employed Before and After Rehabilitation. All of the study groups showed a greater percentage of time employed in the 24 months after rehabilitation than in the 12 months before rehabilitation. For all Fiscal Year 1969 rehabilitants, time employed before rehabilitation was approximately 35%, and time employed after rehabilitation was approximately 75%. The calculations did not include persons listed as students at time of acceptance for services.

10. Earnings for Employed Rehabilitants. Average weekly earnings for those employed at various stages in the rehabilitation process (acceptance, closure, after rehabilitation, and at follow-up) showed regular increases. Average weekly

earnings at follow-up for employed Fiscal Year 1969 rehabilitants were $114. Earnings per week by program group at follow-up were: Physically Disabled ($120), Mentally Ill ($106), Mentally Retarded ($93), Public Assistance Recipients ($100), Workmen's Compensation Recipients ($139).

11. Receipt of Public Assistance. Sixty percent of the Public Assistance Recipients at time of acceptance were removed from welfare rolls by rehabilitation and maintained their independent status at the time of follow-up. A small proportion of other rehabilitants, not receiving Public Assistance at acceptance, were found to be obtaining assistance at follow-up. This finding is interpreted to reflect the fact that some rehabilitants have become too disabled to work. It is also viewed as another result of the relatively poor economic status of the State at the time the survey was made. The number of persons receiving Public Assistance throughout Michigan increased dramatically (67%), during the 12 months between the studies.

12. Reactions to Services. Over 40% of all respondents stated they found training they received by DVR helpful to them. About one-third mentioned counseling, and lower percentages mentioned other services. About 15% reported they received no services which were helpful.

About 75% of the respondents reported they were Very Satisfied or Somewhat Satisfied with their DVR services, 11% were neutral, and 15% reported themselves Somewhat Dissatisfied or Very Dissatisfied.

Approximately 30% sought more services, and most of the requests were for training or job placement assistance.

The Workmen's Compensation Recipients tended to be less satisfied with their services than any other group. The fact that this group had a higher rate of

employment and higher earnings at follow-up than the other groups would suggest that the response of satisfaction or dissatisfaction with services is more related to the client's perception of his personal circumstances rather than to objective measures of employment level, income, etc. Reported satisfaction for the five study groups is summarized in Table S-1.

TABLE S-1

REPORTED SATISFACTION WITH SERVICES FOR FY 1969

REHABILITANTS BY PROGRAM. (IN PERCENT)

	Physically Disabled	Mentally Ill	Mentally Retarded	Public Assistance	Workmen's Compensation
Satisfaction	74	70	78	70	60
Neutral	12	14	2	16	10
Dissatisfaction	14	16	20	14	30

BENEFIT/COST ESTIMATES

Discussion and Method

Benefit/cost analysis provides a means to estimate the economic impact of vocational rehabilitation programs. It seeks to make explicit the economic benefits and costs which derive from the program. The Michigan Division of Vocational Rehabilitation utilizes a benefit/cost model which is intended to reflect the relationship between the economic gains which result from rehabilitation and the program costs of rehabilitation.

The general design of the model is:

$$\text{Ratio of Benefits to Costs} = \frac{\text{Total dollar value of all benefits}}{\text{Total dollar value of all costs}}$$

Two major objectives of vocational rehabilitation are (1) to increase client earnings, and (2) to decrease payments of public assistance to clients. The follow-up study provides data concerning the average earnings of rehabilitants before and after rehabilitation. It also provides data concerning the amounts of public assistance received by rehabilitants before and after rehabilitation. The before-after differences may be projected over the expected working life of the individual rehabilitant or the particular sample group being used.

The formula may then be expressed as follows:

$$R \text{ (ratio)} = \frac{B_1 + B_2}{C_1}$$

where B_1 = Estimated net increase in lifetime earnings of rehabilitants

B_2 = Estimated net decrease in lifetime public assistance payments to rehabilitants

C_1 = The costs of rehabilitation, including direct service costs, and costs of counseling, administration, and facilities.

Adjustments are made in the overall calculations to estimate such factors as expected future losses of employment and earnings increases. In addition, a discount rate is used in order to attribute less value to future projections than

to current earnings and costs. It is possible to project benefits over less than the working lifetime, and a projection for only two years is included in this report. Persons interested in a more detailed understanding of the calculations should consult Chapter V (pp.54-75) of the body of the report and the references given there.

Care should be used in interpreting the results of benefit/cost calculations. They are estimates, and although based upon the best data currently available, they utilize estimated variables. They also involve specific sets of assumptions. Different B/C ratios obtain if the perspective is viewed as that of the individual, various levels of government, or society as a whole. In addition, benefit/cost ratios do not measure humanitarian or intangible benefits such as improved personal well-being, family stability, or lower crime rates.

The DVR benefit/cost model is limited to the rehabilitation agency perspective. It includes only two stated benefits and does not at this time include benefits which may accrue to persons provided services but not rehabilitated, benefits to persons rehabilitated as homemakers, persons removed from dependence upon state institutions, or possible benefits to family members other than the rehabilitant.

Benefit/Cost Estimates

Utilizing the formula given above the following values were calculated for the DVR benefit/cost ratios. Costs of purchased client services and estimated total rehabilitation costs are also given.

Table S-1

ESTIMATED BENEFIT/COST RATIOS AND REHABILITATION COSTS BY PROGRAM

	Physical Disabled	Mentally Ill	Mentally Retarded	Public Assist.	Workmen's Comp.	All FY 1969 Rehabs
B/C Ratio:						
Working Life	$ 24.88	$ 26.31	$ 30.43	$ 18.07	$ 39.34	$ 25.85
Two Years	2.69	2.98	3.53	2.43	4.57	2.86
Service Costs	504.54	376.16	412.07	492.39	352.76	475.51
Total Costs	1,796.16	1,339.13	1,466.96	1,752.91	1,255.83	1,692.31

An example of an interpretation of the benefit/cost ratios would be: For the Physical Disability group it is estimated that each dollar spent for vocational rehabilitation will result in a total in increased earnings and decreased public assistance payments of $24.88 over the working lifetime of the "average" group member.

Among the sample groups, the Workmen's Compensation Recipients ratio is relatively high. This may be attributed to the fact that service costs to DVR are relatively low, and employment retention and earnings after rehabilitation are relatively high. The ratio for Public Assistance Recipients is relatively low because service costs were relatively high, while earnings after rehabilitation and expected work life were relatively low. However, for this group it was estimated that approximately 2½ times the cost of rehabilitation would be realized in decreases in public assistance payments--a significant savings of public funds.

It should also be noted that a ratio projected only two years after rehabilitation shows an average return of $2.36 for every $1.00 in costs. Within a period of less than one year, the average rehabilitant had achieved a benefit/cost ratio of 1:1; that is, the economic benefits in terms of earnings and reduced welfare payments equal the cost of all rehabilitation services.

ACHIEVEMENT OF OBJECTIVES

The following comments relate the results of the study to the objectives of the agency as stated in the report.

1. To improve the employment status of handicapped persons. In comparisons of pre-rehabilitation and post-rehabilitation status, the rehabilitants of Fiscal Year 1969 showed marked increases in number in productive status, numbers employed, percentage of time employed, and numbers in occupations requiring skills. Most rehabilitants reported satisfaction with their post-rehabilitation jobs, and a

very high percentage of employed rehabilitants were working full time. In addition, most respondents recalled DVR services as helpful, and indicated satisfaction with their services.

2. To provide stable client employment. A high percentage of rehabilitants were employed at the time of follow-up, and most had been employed with one employer since closure. Of those not employed, most had withdrawn from the labor market to become homemakers or because they were too disabled to work. Percentage of time employed during the follow-up period was higher than in the period before rehabilitation.

Employment rate at follow-up among the Fiscal Year 1969 rehabilitants was not as high as for Fiscal Year 1968 rehabilitants in a study conducted 12 months earlier. The difference was consistent with the lower rates of employment among all Michigan workers at the time the current study was made.

3. To increase client earnings. Earnings averaged over all rehabilitants (whether working or not) increased significantly from the time of acceptance for rehabilitation services to case closure. The average remained high at follow-up even though some persons had left employment and had no earnings. The change represents increased productivity for the group. Those who remained in employment at follow-up were earning more than those employed at closure and much more than those few who were employed at acceptance.

The numbers of persons receiving Public Assistance when accepted for services was greatly reduced by the time of case closure, and remained approximately the same at follow-up two years later. A small percentage of other rehabilitants, not receiving Public Assistance at acceptance, were unable to maintain their employment gains. They were found receiving Public Assistance at closure, usually due to increased disability.

4. To provide services to specified target groups. Services to five program populations were examined in this study. All of the groups showed

gains in employment status from before to after rehabilitation. The gains were not uniform, and some of the client characteristics which may be related to the differences in outcomes were observed. They include higher age levels, presence of more than one disability, and lower educational background. All of the groups were served with significant client success and with favorable benefit/cost ratios.

5. To achieve favorable benefit/cost ratios for agency operations. Benefit/cost ratios based upon increased rehabilitant earnings and decreased dependence upon Public Assistance remain very favorable for the total rehabilitation program. They are slightly below the estimates of the previous year due to improved cost data, and conservative estimates of the variables used in the calculations. They differ markedly among sub-program groups as might be expected. However, the ratios remain very favorable for all groups. The inclusion of other benefits such as decreased dependence upon public institutions, homemaker services, and the humanitarian values of rehabilitation would result in even more generous estimates.

6. To increase the educational achievement level of rehabilitants. Progress toward this objective is not reported in this study as this goal was only recently adopted by the Vocational Rehabilitation Service and was not part of the rehabilitation plan of service at the time these clients were rehabilitated. Educational achievement will become a part of our assessment efforts in future years as today's rehabilitants are followed-up. All clients will have an opportunity to achieve an 8th and/or 12th grade proficiency as such achievement is regarded as necessary to obtaining and retaining employment in our society.

THE VOCATIONAL STATUS OF MICHIGAN REHABILITANTS OF FISCAL YEAR 1969 TWO YEARS AFTER CASE CLOSURE

I. INTRODUCTION

The general objective of the Michigan Division of Vocational Rehabilitation (DVR) is to improve the employment status of handicapped persons. Among the primary sub-objectives are the following:

1. To provide stable client employment.
2. To increase client earnings.
3. To provide services to specified target groups.
4. To achieve favorable benefit/cost ratios for agency operations.
5. To increase client educational achievement level.

This report describes an assessment of agency achievement related to these objectives, plus certain other indicators of the vocational status of persons rehabilitated by the agency. It seeks to answer questions such as

1. Do clients who are rehabilitated by DVR stay employed?
2. What kinds of jobs do they obtain?
3. Do they stay on the same jobs?
4. Do they work full-time on their jobs?
5. Are they satisfied with their jobs?
6. Do they become less dependent upon public assistance?
7. Do the services to the client provide sufficient benefits to justify their costs?

II. METHOD

This study was a continuation and extension of the Vocational Rehabilitation Follow-up Study conducted in 1969. The first study was a two year later

follow-up of rehabilitants whose cases were closed in Fiscal Year 1968. The present study also utilized the two year follow-up period, and dealt with rehabilitants whose cases were closed in Fiscal Year 1969. It involved almost three times as many cases, and it sampled five sub-program populations sufficiently to allow meaningful comparisons to be made. The survey was conducted between December 1, 1970 and January 31, 1971. The time from case closure to follow-up was 18 to 30 months. The average time after follow-up was 24 months, and the time period is described as two years throughout the report.

The sample was selected by computer from the total population of 6139 cases closed rehabilitated during the period from July 1, 1968 to June 30, 1969. A stratified random procedure was used. The sample numbers in each of the five sub-populations were selected to allow estimation of the employment rate with statistical reliability.

The groups studied were:

1. The Physically Disabled. Rehabilitants in this group had one of the following types of major disabling conditions at the time of acceptance for services as defined in Vocational Rehabilitation Manual, July, 1969: Visual Impairments (Codes 100-149), Hearing Impairments (200-229), Orthopedic Deformities (300-399), Absence or Amputation of Members (400-449), Other Physical Disabling Conditions (600-299). This group constituted 72.8 percent of the rehabilitants of FY 1969. One-seventh of all the cases were selected for the sample group.

2. The Mentally Ill. Rehabilitants in this group had one of the following major disabling conditions: Psychotic Disorders (Code 500), Psychoneurotic Disorders (510), Other Mental Disorders (520-522). This group constituted 12.9 percent of the rehabilitant population. One-half of the cases were selected for the sample group.

3. The Mentally Retarded. Rehabilitants in this group had the following major disabling condition. Mental Retardation (Codes 530-534). This group comprised 14.3 percent of the population. One-half of the cases were selected for the sample group.

4. Public Assistance Recipients. Rehabilitants in this group listed aid through county welfare offices and the Michigan Department of Social

Services as their primary source of support at the time of acceptance for services. Approximately 8 percent of all rehabilitants were in this category. All of the cases for whom complete records were available were used in the study.

5. Workmen's Compensation Recipients. Rehabilitants in this group listed Workmen's Compensation as their major source of support at the time of acceptance for services. Approximately 3 percent of all rehabilitants were in this group. All of the cases with complete records were utilized in the study.

6. All Fiscal Year 1969 Rehabilitants. Results for this category were derived by proportionately weighting and combining results determined for Groups 1, 2, and 3. These three categories are mutually exclusive and together comprise the total rehabilitant population.

It should be noted that the purpose of the study was to assess vocational stability on a sub-program basis for administrative purposes. Sub-program target groups are identified to emphasize services to certain groups of clients, and are not always mutually exclusive. All clients have a single major disabling condition, and the total of all disability categories comprise the total population of rehabilitants. All Public Assistance Recipients and Workmen's Compensation Recipients also have disabilities, and a sub-program by disability type, e.g. Mentally Ill, includes some persons receiving public assistance or workmen's compensation. The groups utilized in this study did not correspond exactly to program and sub-program designations used in Fiscal Year 1971 as those designations were not in use in Fiscal Year 1969. However, the Mentally Ill and Mentally Retarded comprise the current Mentally Handicapped Sub-Program, and the Workmen's Compensation group are now designated as the Workmen's Compensation Project.

A questionnaire was devised to gather the desired information and mailed to the 1600 potential respondents. It was followed by a reminder card, and then a third mailing consisting of both the questionnaire and the reminder card. There was a seven to ten day interval between mailings. Copies of documents utilized in the data gathering are provided in Appendix A.

Over 60 percent of the questionnaire were completed and returned. Of these, approximately 15 percent required phone contact or were unusable. Attempts were made to phone persons who did not respond to the mail questionnaire. Calls were made from Lansing through the Centrex leased line system by interviewers who were graduate students in counseling at Michigan State University. A total of 1134 persons ultimately responded. Listed below are the response rates.

Table 1

Response Rates for Five Program Groups

	Physically Disabled	Mentally Ill	Mentally Retarded	Public Assist.	Workmen's Compensation
Sample	485	322	356	383	158
Respondents	376	216	277	232	103
Response Percentage	77.5	67.0	77.8	60.5	65.1

The overall response rate was over 70 percent, and more than 80 percent of those for whom addresses were known. In addition, reports were received regarding twelve persons who were deceased. There are differences among the groups, reflecting the difficulties of locating respondents. However, in general, the response rates are considered very good.

After the questionnaire responses were received, the responses were matched with data available from case records. Data cards were keypunched for the questionnaire responses and tabulation was conducted by the Department of Education's Data Processing Section.

III. THE POPULATION GROUPS

One of the valuable outcomes of the study was acquisition of descriptive information concerning the study groups. Tables B-1 through B-10 in Appendix B

provide descriptive data comparing the population groups on a number of variables including age, sex, race, education, disability, employment status at acceptance, referral source, public assistance status, and source of income at acceptance. The tables describe the characteristics of the groups and also provide a comparison between the sample as selected by computer and the responses received. While there are some discrepancies between the characteristics of the respondents and the initial sample, the correspondence is generally very close. This suggests that the respondent contact method was generally successful. While there is no assurance that the status of non-respondents is accurately reflected, the tables support the necessary assumption that non-respondents do not differ markedly from respondents.

The information in the descriptive tables is summarized below.

Group 1--The Physically Disabled

The Physically Disabled are the traditional clientele of DVR. In Fiscal Year 1969 they comprised almost three-fourths of all rehabilitants. In general, their characteristics closely approximated those of the total population of rehabilitants. Almost 45 percent of the group had orthopedic or absence-amputation disabilities. Another 40 percent had major disabilities in the Other category which includes cardiac conditions, respiratory diseases, disorders of the digestive system, and other disabilities. Approximately one in five had a visual or hearing disability, and an equal number, one-fifth, had a second disability.

Almost 70 percent of the Physically Disabled were male, a higher proportion than for rehabilitants in general. The Physically Disabled had an average age of 31 and were rather evenly distributed over the four age categories, 0 to 19, 20-29, 30-34, and 45 and over. Almost 40 percent were married, but over 50 percent had never been married. Eighty percent of the group were White. About

18 percent had 0 to 8 grades of education but one-half of the group reported 12 grades or more.

The Physically Disabled were referred from a variety of sources. The largest single source was Individual or Self which accounted for about 20 percent. Almost one-fourth were in competitive employment at the time they applied for services. They listed current income as their primary source of support. Presumably they applied for services because their job was placing stresses upon them because of their disability, or because they needed assistance to avert loss of employment. Almost one-fifth of the Physically Disabled were students when accepted for services, but over 50 percent were non-students who were unemployed.

Group 2--The Mentally Ill

The Mentally Ill comprised about 13 percent of all the FY 1969 rehabilitants. About 10 percent of the group had a second disability. Half of the group were female, the largest proportion of females among all groups. The average age for the group was 30, the same as for rehabilitants in general. Over 70 percent of the group were in the age bracket from 20 to 44. Less than half of the group had ever married, but one-fourth were widowed, divorced, or separated. Eighty-six percent were White, the largest proportion among the five groups. The educational level was relatively high, with well over half having 12 grades or more of formal education. The response rate among those with 12 or more years of school was proportionately higher than for those with less than 12 years.

The largest single source of support at acceptance for the Mentally Ill was family and friends, but almost 30 percent of the sample listed public institutions as their source of support. None of the other populations had significant numbers from this source.

Almost two-thirds of the Mentally Ill rehabilitants were referred to DVR by agencies listed as health agencies. No other referral source provided as many

as 10 percent of the total. Four-fifths of the Mentally Ill were not working at the time they were accepted for DVR services; about 14 percent were in competitive employment, and only 6 percent were students.

Group 3--The Mentally Retarded

This group comprised 14 percent of all the FY 1969 rehabilitants, and one-half of the total were selected in the sample for this study. About 20 percent had a second disability with their mental retardation. The sex distribution among the Mentally Retarded was about the same as for all rehabilitants, two-thirds male and one-third female. The average age was 19, much younger than the total population. Over 70 percent of the group were under 20, another 20 percent were under 30, and less than 5 percent were 30 or over. Less than 5 percent had ever married. About two-thirds of the group were White; the remainder were Black, and there were none in the Other category.

About 15 percent of the group had completed 12 grades or more in school. Over 60 percent were listed in the Special Education or Not Reported category. Eighty-five percent listed family and friends as primary source of support. The composite picture of the Mentally Retarded DVR client is that of a young person, and as might be expected, over 50 percent of the cases were referred from educational institutions.

Group 4--Public Assistance Recipients

In this study, Public Assistance Recipients refers to persons who were receiving aid from the Michigan Department of Social Services and county welfare offices when they were accepted for rehabilitation services. Aid was received in the categories Aid to the Blind, Aid to the Permanently and Totally Disabled, Old Age Assistance, Aid for Families with Dependent Children, or General Assistance (other). No other forms of public assistance were included.

Public Assistance Recipients comprised about 15 percent of all referrals, and about 10 percent of all rehabilitants. Their disability pattern was similar

to that of the Physically Disabled except that 12 percent were listed in the category Mental Illness and 3 percent in the category Mental Retardation. Almost 30 percent had more than one disability.

Nearly half of the rehabilitants were female, a distribution similar to that for the Mentally Ill. The age distribution is noteworthy. The average age was 37. About 30 percent were under the age of 30, and almost an equal number were 45 or over. About three-fourths of the group were White, and one-fourth Black. The educational level was low. Thirty-four percent had completed 0 to 8 grades, and 36 percent had completed 9 to 11 grades. The remaining one-fourth had 12 years of education or more.

Almost one-half of the Public Assistance Recipients were listed as married, but another 37 percent were listed as widowed, divorced, or separated. The remaining 17 percent had never married. Over half of the group was receiving AFDC, with another 30 percent listing General Assistance or Other as their type of public assistance. About 10 percent were receiving Aid to the Totally and Permanently Disabled. About one-third of this group was referred to DVR by welfare agencies. Health agencies referred about 15 percent. The referral source was unreported for almost 20 percent of the cases.

Public Assistance Recipients were rarely employed at the time of acceptance. Only 5 percent were found in competitive employment while over 80 percent were listed as not working and about 10 percent as homemakers.

Group 5--Workmen's Compensation Recipients

Workmen's Compensation Recipients comprised about 3 percent of all the rehabilitants for FY 1969. The entire group was sought in this study. Persons in this group were involved in industrial accidents and the responsibility for their rehabilitation rests primarily with their employer and his insurer. However, DVR provides services which may not be available from these sources.

Almost 90 percent of the Workmen's Compensation Recipients had disabilities described as orthopedic or absence-amputation. It was thus a relatively homogeneous group in terms of disability type. Likewise, almost 90 percent of this program group were male. The average age was 35 at time of acceptance for services. About 30 percent were under 30. The table reveals a response bias in this group as the Over 45 age group is over-represented and the two age groups under 30 are under-represented. Eighty percent of the group were White. The educational level was relatively low; almost two-thirds had failed to complete 12 years of school. Almost three-fourths of this group were married, a much higher proportion than for any of the other program populations. The referral sources for Workmen's Compensation cases are varied. About one-third are listed as Other--presumably insurance companies. Only three percent are referred by the State Workmen's Compensation agency. Almost all of these clients (95 percent) are recorded as not working at time of acceptance for services.

Summary

The population descriptions reveal clear differences in the characteristics of the program groups. The Physically Disabled were a large and heterogeneous group whose profile was similar to that of rehabilitants in general.

The Mentally Ill were a relatively well-educated group, mostly White, many females, and many coming to DVR from State institutions.

The Mentally Retarded were almost exclusively a student group referred by the schools. Average age was 19. About two-thirds were White, one-third Black. They tended to live with their parents, were not married, and had little work experience.

The Public Assistance Recipients were middle-aged and almost half were female. Their educational status was low; many were widowed, divorced, or separated. Almost one-third had more than one disability, and less than 5 percent were employed.

The Workmen's Compensation Recipients were almost exclusively males with orthopedic disabilities. They were middle aged, with relatively low levels of education and were unemployed at the time they were accepted for DVR services. However, they had presumably worked before and a very large proportion had a stable marital status.

The differences among the groups are substantial, and suggest that assessment results based on the total population of rehabilitants would not be representative for all groups.

IV. RESULTS OF THE SURVEY

The information derived from the follow-up study is summarized in this section. The difficulties in presenting data concerning five program groups and suitable comparison populations are considerable. An attempt has been made to cope with the problem by presenting a series of illustrations. They are given as Figures 1 to 19 on pages 28 to 46. The figures include a brief narrative summary. In the following paragraphs the figures are discussed further. The data in tabular form are listed in Appendix C. Percentages of responses are based on those cases responding. Not all persons responded to all questions. Records for persons deceased are eliminated from the report except in Figure 2, Labor Force Participation.

EMPLOYMENT STATUS

Productive Status at Time of Acceptance, Case Closure, and Follow-up (Figure 1). Clients are in rehabilitated status if they are productively engaged as competitive workers, sheltered workers, or homemakers. Client status changed markedly over the three time points representing the beginning, the end, and 2 years after rehabilitation. For rehabilitants in general the proportions productively engaged at acceptance and at closure were identical for FY 1968 and FY 1969 cases. About 28 percent were in productive status before rehabilitation, and all were considered productively engaged at case closure. The FY 1969 cases show a lower percentage of persons productively engaged two years after rehabilitation (75 percent versus 87 percent for FY 1968 cases). The difference is attributed to the change in employment rates for all Michigan workers, a change which is discussed further under Employment Status, Figure 4. Among the study groups, Group 1—The Physically Disabled retained the highest proportion of persons productively engaged. The Public Assistance group showed the lowest proportion, and the other three groups were approximately the same. There are

differences in the numbers of persons in Homemaker status, however, which are reflected in labor force participation and employment rates.

Numbers in Labor Force (Figure 2). Respondents who were not employed were asked to indicate if they are seeking employment. They were considered to be in the labor force if they were employed, or unemployed but looking for work. This excluded rehabilitants who were unpaid family workers, housewives, students, and those who described themselves as too disabled to work. Service men were considered to be in the labor force and employed. The classification of respondents, therefore, was dependent upon their own indication of their status.

The proportions of rehabilitants in the labor force two years after rehabilitation were very similar for FY 1968 and FY 1969 rehabilitants. Approximately 80 percent of the respondents considered themselves in the labor force; one to three percent were deceased, and the remaining approximately 20 percent were not in the labor force. The proportions were approximately the same for the Physically Disabled, the Mentally Retarded, and Workmen's Compensation Groups. The Mentally Ill and Public Assistance Groups had 25 and 35 percent respectively reporting themselves not in the labor force. This presumably reflects the larger proportion of women in these two populations.

Reasons Not in Labor Force (Figure 3). Approximately 80 percent of all rehabilitants who were not in the labor force at follow-up reported they were either homemakers or too disabled to work. The proportion of homemakers and disabled varied widely among the programs. Less than 20 percent of the respondents were retired, were students, or were out of the labor market for other reasons. The FY 1969 results tend to show a smaller proportion of homemakers than were shown for FY 1968 rehabilitants. The previous study did not request specific information on this point and the results may not be comparable.

Employed Status for Rehabilitants in the Labor Force (Figure 4). For those persons who considered themselves in the labor force, the overall employment rate for FY 1969 rehabilitants was 82 percent. This compares with a figure of 91 percent in the previous year's study. It is noteworthy that the unemployment rate among the rehabilitants is exactly double that of the previous year, and that an identical relationship exists between the unemployment rates for all Michigan workers at the two points in time. The effects of the general economic status of the State are unmistakable in the results of the study, and must be borne in mind when evaluating their meaning. The gap between the unemployment rate for all workers and for rehabilitants is indicative of the fact that the Division of Vocational Rehabilitation works with a marginal population who have difficulty maintaining stability in employment. It is also probable that some rehabilitants who state they are seeking employment are in fact so disabled as to be unemployable --a factor which may inflate the number of rehabilitants listed as in the labor force but unemployed.

There are likewise systematic differences among the study groups. The rank order is: Workmen's Compensation (87%), Physical Disability (83%), Mental Illness (78%), Mental Retardation (76%), and Public Assistance (73%). It should be noted that the percentages include those in sheltered employment. Since 11 percent of the Mentally Retarded are in this type of employment, the percentage in competitive employment is actually the lowest among the groups.

Percent of Employed Rehabilitants Working Full Time at Follow-Up (Figure 5). Not all rehabilitants are able to maintain full time employment or are desirous of doing so. The proportions of persons working full time differ somewhat among the groups. The Workmen's Compensation rehabilitants show 96 percent working in full time positions. The other groups average about 86 percent and range down to 82 percent for Public Assistance Recipients. The figures refer to both persons working in competitive employment and persons working in sheltered settings. No figures were available for the FY 1968 rehabilitants.

Type of Employment at Follow-Up (Figures 6 and 7). Rehabilitants are found in all types of occupations and the programs differ markedly in types of employment at follow-up. For all rehabilitants, about 40 percent are found in professional-technical or clerical-sales occupations. Another 20 percent are in service occupations, and the remainder are in industrial positions. About one-fourth of the rehabilitants are in the unskilled category. The Physically Disabled group shows a somewhat higher proportion in the professional-technical and clerical-sales categories and somewhat fewer in the service group. The other four groups show smaller proportions in the upper two categories. The Mentally Retarded group has a distinctive distribution bias in the low-skill areas. None are in the professional-technical category, and only 10 percent in clerical-sales. The Workmen's Compensation group retains almost 60 percent in the industrial classifications, but the remainder are almost all in professional-technical, or clerical-sales with few in the service areas. The configuration of types of occupations is undoubtedly influenced by the sex differences among the population groups.

Figure 7 compares the types of occupations held by those employed before rehabilitation and those employed at follow-up. The employed rehabilitants clearly have more desirable types of jobs at present than did those few who were employed at some time in the year prior to rehabilitation. For every study group there are higher proportions in the skilled areas at follow-up than there were before services. Table 6 in Appendix C includes the occupations at time of closure as well.

Reported Job Satisfaction at Follow-up (Figure 8). About 70 percent of all of the respondents reported that they were Very Satisfied or Somewhat Satisfied with their employment. Approximately 15 percent reported that they were Somewhat Dissatisfied or Very Dissatisfied. The pattern was quite consistent among the different groups. However, the Workmen's Compensation Recipients tended to report less satisfaction than the other groups, with 22 percent reporting dissatisfaction.

Number of Jobs Held After Rehabilitation (Figure 9). Employment stability may be indicated by the number of jobs held during the follow-up period of 1½ to 2½ years. Eighty to ninety percent of the employed rehabilitants have held one or two jobs during the period from case closure to follow-up. Number of jobs is listed for persons currently employed, as employment in one job is not indicative of stability if the job was lost. While the patterns are very similar for the program groups, one exception is noted. The pattern for the Mentally Ill seems to reveal a larger number of job changes. The average for the group is 1.79 jobs during the period. No other group has an average above 1.56.

Percentage of Time Employed Before and After Rehabilitation (Figure 10). As relatively complete work histories were derived by questionnaire responses and examination of case records, it was possible to estimate for most of the subjects the amount of time in employment during the twelve months prior to application for rehabilitation services and the amount of time employed in the 18 to 30 months between case closure and follow-up. It is possible to express this information as a percentage of all possible time in which the rehabilitants were employed. For every population group the time spent in employment after rehabilitation was greater than the time before rehabilitation. The differences are greater when all cases are considered than when only those cases are considered for which there were earnings at some time during the 12 month or 24 month periods. Persons listed as students at time of acceptance were not included in this calculation, as they were presumably not in the labor market due to their student status during the 12 months prior to application for services. This table seems to reveal clearly that changes in the employment status have occurred for all of the groups.

EARNINGS OF REHABILITANTS

Weekly Earnings per Rehabilitant at Time of Acceptance, Case Closure, and Follow-up (Figure 11). Earnings per rehabilitant may be considered a measure of productivity. They reflect both the level of earnings of those who are employed, and the numbers who have no earnings whatsoever. For the FY 1968 rehabilitants, average earnings were higher at follow-up than at closure due to wage increases for those employed. For the FY 1969 rehabilitants, earnings per rehabilitant reached a peak at closure when all clients except homemakers had some income. They decreased with time as persons became unemployed, got married or for other reasons left the labor market. The losses in unemployment offset wage increases by the employed.

All of the rehabilitant groups showed dramatic increases in productivity. The Workmen's Compensation group advanced the most during their rehabilitation and tended to retain their gains. The Mentally Retarded and Public Assistance groups progressed the least. Conservative estimates of these differences provide the basis for the benefit/cost analysis described in Section V. It should be borne in mind that the number of Workmen's Compensation cases is relatively small and observed differences might not be as large if the larger number were considered.

Average Weekly Earnings for Employed Rehabilitants at Acceptance, At Closure, and After Rehabilitation (Figure 12). Figure 12 must be interpreted with some care. It reveals average weekly earnings for those persons who were employed at various stages in the rehabilitation process. The groups are not necessarily the same individuals at different points in time. Much larger numbers of persons are employed after rehabilitation than at acceptance.

The figure illustrates that earnings of employed rehabilitated workers have increased since rehabilitation, that there are differences in earnings levels among the program groups, and that the rates of increase among the groups differ.

In this illustration, differences in rates of increase do not emerge as sizable. Presumably, some of the earnings increase is the result of general wage - increases and inflation. As indicated previously, the Workmen's Compensation group showed high earnings gains. The Mentally Ill group show an irregular pattern, the Public Assistance Recipients are progressing, and the Mentally Retarded are tending to fall behind.

PUBLIC ASSISTANCE AND OTHER INCOME

Receipt of Public Assistance (Figure 13). About 65 percent of the rehabilitants who named Public Assistance as their primary source of support at time of acceptance were removed from welfare rolls by the time of case closure. Thirty-five percent continued to receive assistance, often in reduced amounts. At the time of follow-up two years later, only 41 percent were again receiving Public Assistance, a modest increase.

In the study of FY 1968 rehabilitants, the percentage of all rehabilitants receiving Public Assistance at follow-up was equal to the percentage at case closure. In the present study, the proportion at follow-up has increased from 4 to 8 percent. The increase has come from persons not receiving assistance before rehabilitation. Some have become too disabled to work, as indicated in other study information. Some of the Mentally Ill may be receiving Public Assistance now when they were previously institutionalized at much greater cost. The Mentally Retarded have become adults and may now receive Public Assistance rather than parental support.

The major factor in the small increase in Public Assistance dependency would again appear to be the economy of the State in general. The number of persons receiving Public Assistance in Michigan increased 67 percent from December, 1969, the time of the first study, to December, 1970, the time of the second study. (Source: Social Service Statistics, December 1970, Michigan Department of Social

Services). For the handicapped persons served by Michigan DVR, it might be expected that the rate currently receiving assistance would be much higher if they had not received rehabilitation services.

Other Income Sources (Figure 14). Relatively small percentages of rehabilitants reported they were currently receiving Social Security Disability Benefits, Unemployment Benefits, Workmen's Compensation, or Veterans Benefits. About one-fourth of the Workmen's Compensation group report receiving benefits--apparently the group which has not been able to maintain employment. No comparable data are available from the previous study. The results are based on small numbers of cases, and require further study.

Services Recalled as Helpful (Figure 15). The respondents were very productive in naming services they recalled as helpful. Training was mentioned by over 40 percent, and was the service most often named. Over half of the Mentally Ill group reported they benefited from the counseling received. Counseling was named by about one-third of all the respondents. Job Placement assistance was mentioned by over 40 percent of the Mentally Retarded group but by lower proportions of the other groups. Recall of medical services varied among programs as might be expected.

About 15 percent of the respondents reported they received no services which were helpful. Some of these responses were failure to recall services, and others were dissatisfaction with services. Almost one-third of the Workmen's Compensation group reported they received no helpful services, a response which suggests a need for further study.

Reported Satisfaction with Services (Figure 16). Perhaps the most striking observation for this illustration is that the pattern of responses is almost identical with that of the 1969 study. The percentages reporting satisfaction are somewhat lower and the percentages reporting dissatisfaction are slightly higher. This is hardly unexpected in a year when employment is generally poor.

There are observable differences among the study groups. The Physically

Disabled group have the highest percentage reporting themselves Very Satisfied. The Workmen's Compensation group shows over 30 percent reporting themselves somewhat Dissatisfied or Very Dissatisfied. This is of interest as this group has apparently progressed more than the others in terms of earnings and employment after rehabilitation. Over 15 percent of the Mentally Retarded group describe themselves as very dissatisfied with services. All of the groups with the exception of the Workmen's Compensation group show approximately three-fourths of their respondents reporting themselves very satisfied or somewhat satisfied with services. In the Workmen's Compensation group about 60 percent report satisfaction.

Desire for Additional Services (Figures 17 and 18). About 30 percent of the rehabilitants answered yes to the question "Do you need further services from the Division of Vocational Rehabilitation at this time?" This is a small increase over the number providing the same answer in the previous study. The Public Assistance group has the highest proportion requesting services (37%) which fits well with the other information obtained for the study.

Some of the requests are for services not rendered by the agency such as paying electric and fuel bills. Many are from persons now employed who would like better paying positions. In general, the requests must be considered in the context of individual circumstances.

Figure 17 reveals that almost one-half of the service requests were for training with one-third requesting job placement assistance. Requests from the Mentally Retarded group were in reverse order. More requests were for placement assistance and fewer were for training.

Written Comments. About one-fourth of the respondents provided written comments to supplement their questionnaire form. The comments varied greatly in nature, but about 80 percent were positive reactions to their services and about 20 percent negative. An effort is made to reproduce some of the comments

as they serve as a reminder that the numberical tabulations presented reflect a very human enterprise.

RESULTS IN FIGURES

In the following pages the results are illustrated for the five study populations and FY 1969 rehabilitants in general. Where comparable data are available from the previous year's study, they are shown for comparison purposes.

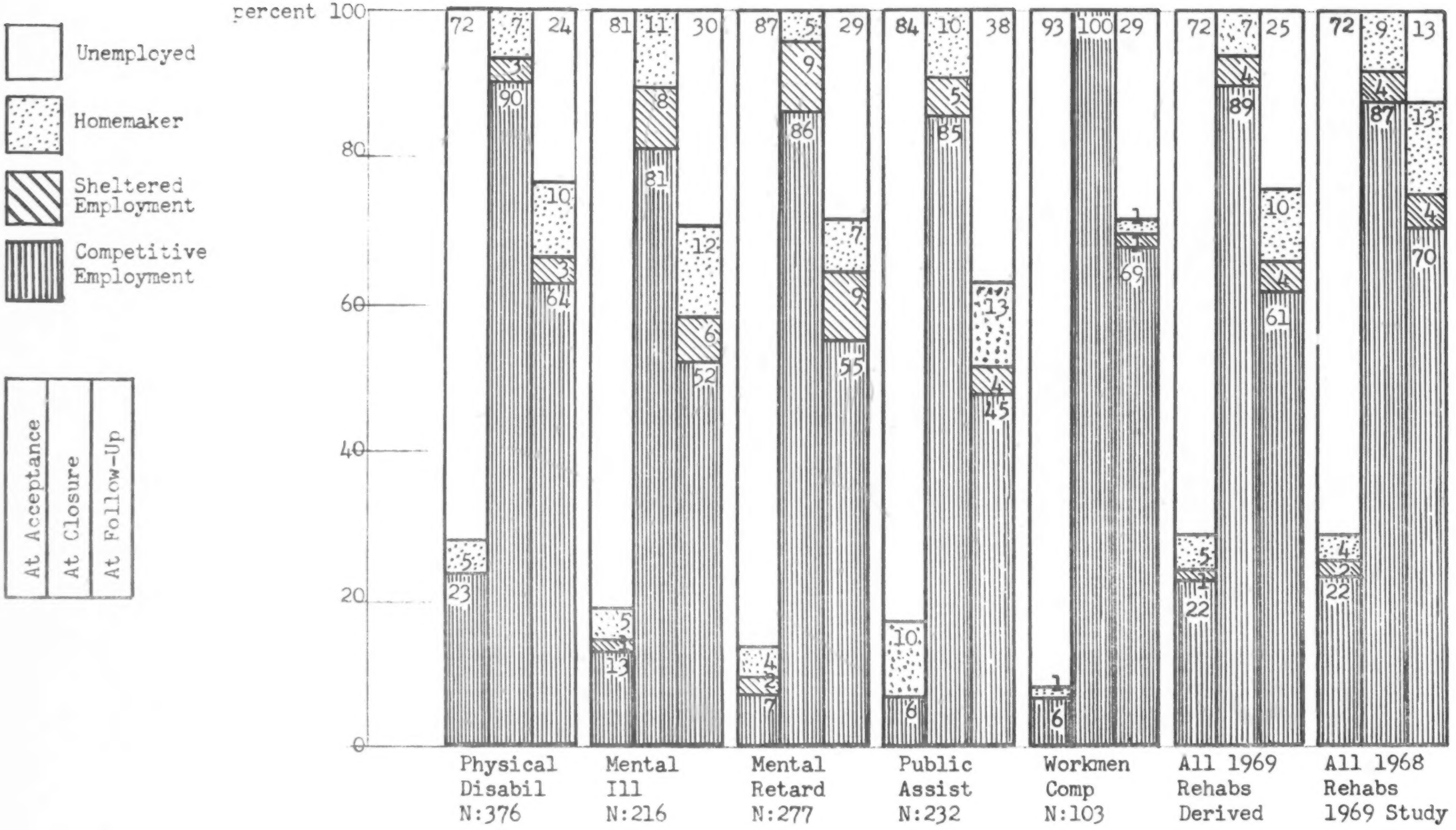

FIGURE 1. PERCENTAGES OF FISCAL YEAR 1969 REHABILITANTS IN COMPETITIVE EMPLOYMENT, SHELTERED EMPLOYMENT, HOMEMAKING AND UNEMPLOYMENT AT ACCEPTANCE, CLOSURE AND FOLLOW-UP TWO YEARS LATER. Cases are closed in rehabilitated status when clients are productively engaged in competitive employment, sheltered employment, or homemaking. About 28 percent of Fiscal Year 1969 rehabilitants were productively engaged when accepted for services, 100 percent at case closure, and 75 percent at follow-up. The status of the rehabilitants clearly improved. The rate productively engaged is not as high as in the 1969 study (75% vs 87%), a subject discussed later. There are sizable differences among the study groups.

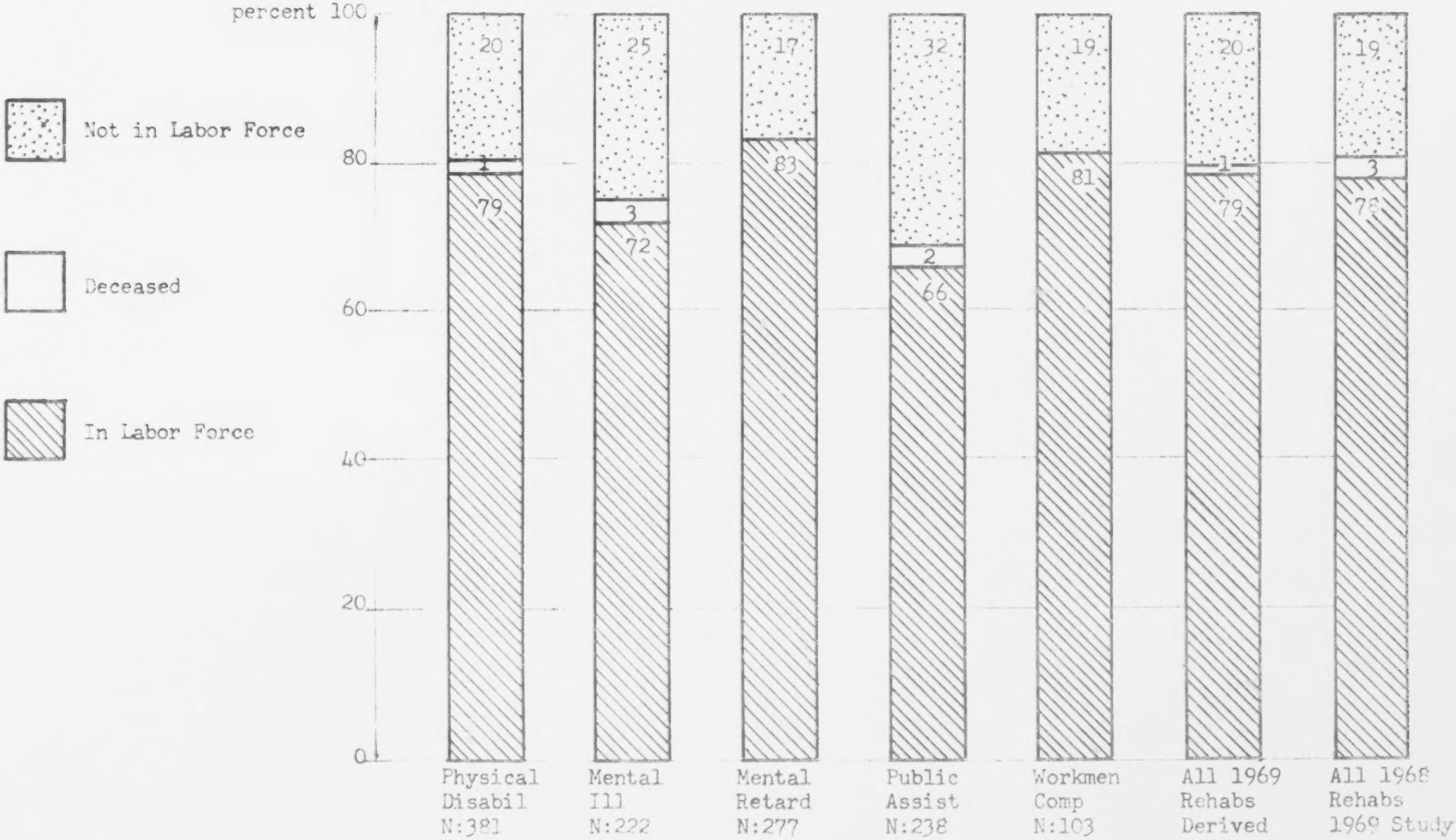

FIGURE 2. LABOR FORCE STATUS TWO YEARS AFTER REHABILITATION FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. Approximately 80 percent of all Fiscal Year 1969 rehabilitants reported themselves in the labor force two years after rehabilitation (employed or seeking employment). The percentage was about the same as found in the 1969 study. The highest labor force participation was by the Mentally Retarded group, the lowest by the Public Assistance. A small proportion of the rehabilitants (12) were deceased.

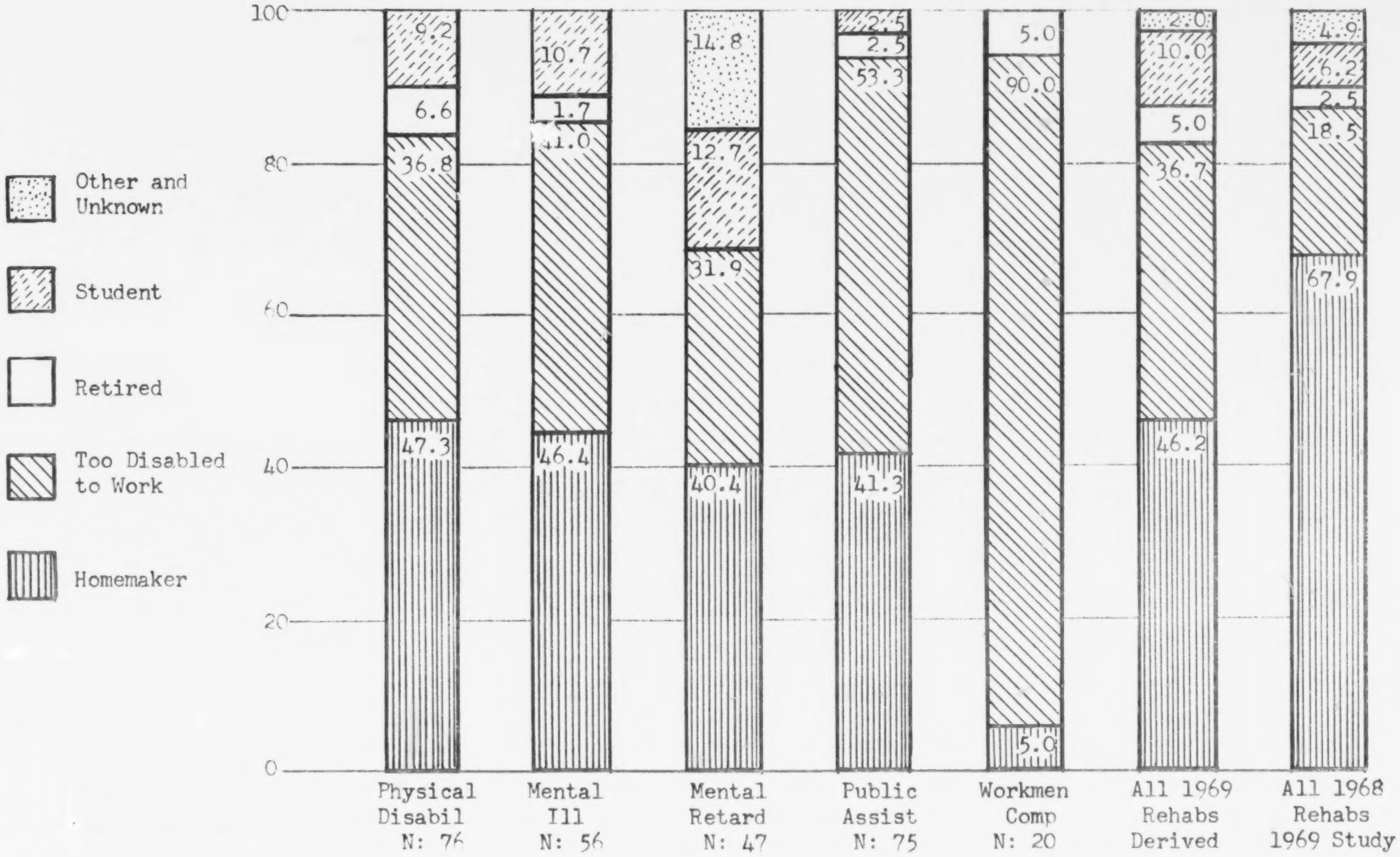

FIGURE 3: REASON NOT IN LABOR FORCE TWO YEARS AFTER REHABILITATION FOR FISCAL YEAR 1969 REHABILITANTS WHO ARE NOT IN LABOR FORCE BY PROGRAM. Approximately 80 percent of all rehabilitants who were not in the labor force at follow-up reported they were either homemakers or too disabled to work. The proportions of homemakers and disabled varied widely among the programs. Less than 20 percent of the respondents were retired, were students, or were out of the labor market for other reasons. The Fiscal Year 1968 results may overstate the proportion of homemakers due to different reporting procedures.

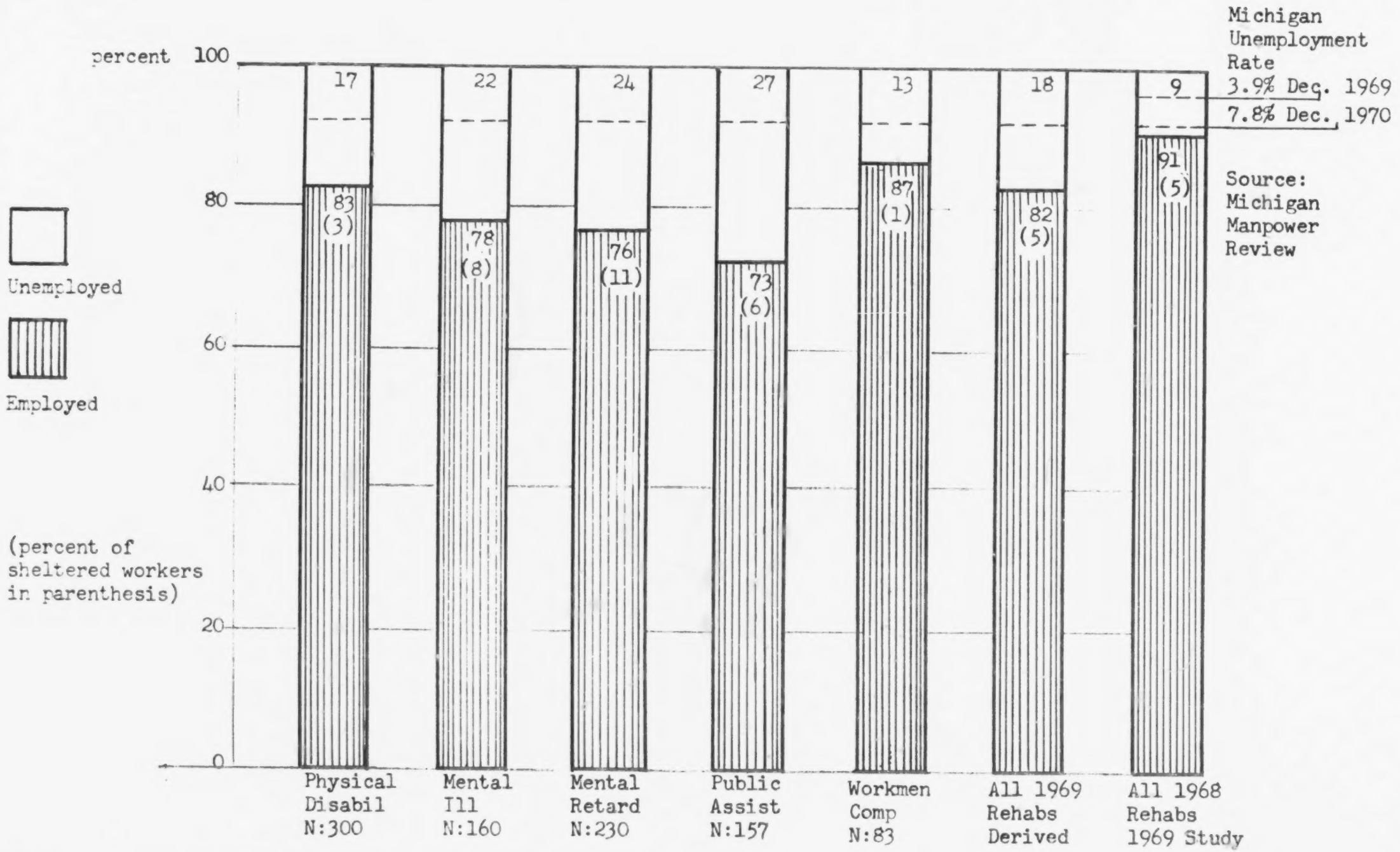

FIGURE 4. EMPLOYMENT STATUS TWO YEARS AFTER REHABILITATION FOR FISCAL YEAR 1969 REHABILITANTS WHO WERE IN THE LABOR FORCE BY PROGRAM. Among those in the labor force, about 82 percent of all Fiscal Year 1969 Rehabilitants were employed at the time of follow-up. The percentage unemployed was twice that found for Fiscal Year 1968 Rehabilitants one year before. The difference reflects a doubling of the unemployment rate for all Michigan workers from December, 1969 to December 1970. Among the groups, the Workmen's Compensation group maintained the highest level of employment; the Public Assistance group had the lowest.

69

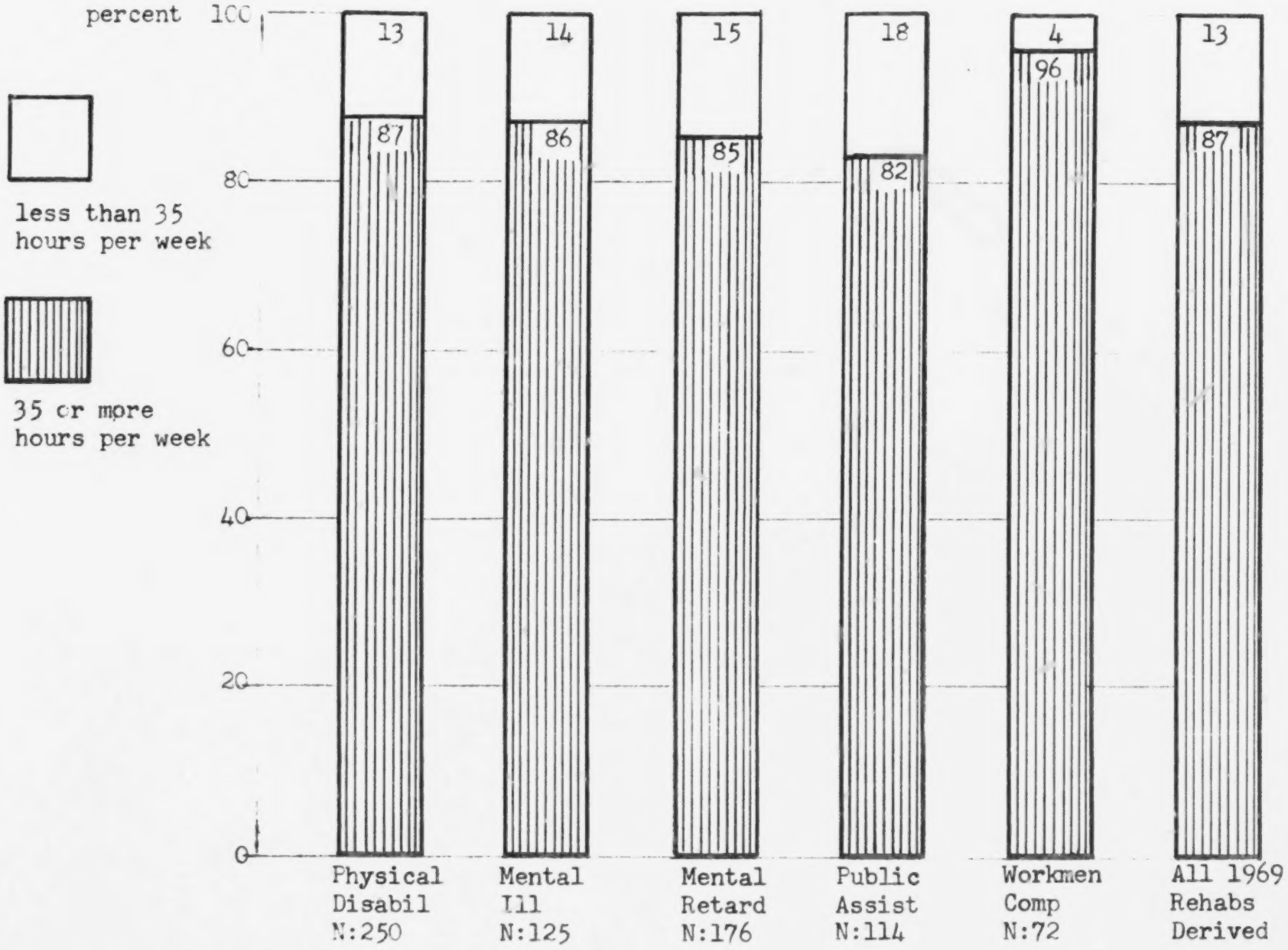

FIGURE 5. PERCENT WORKING FULL TIME TWO YEARS AFTER REHABILITATION FOR EMPLOYED FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. Most Fiscal Year 1969 rehabilitants (87%) maintained full time employment two years after rehabilitation. The proportion ranged from 96 percent for Workmen's Compensation recipients to 82 percent for Public Assistance recipients. No comparable figures were available from previous experience.

61

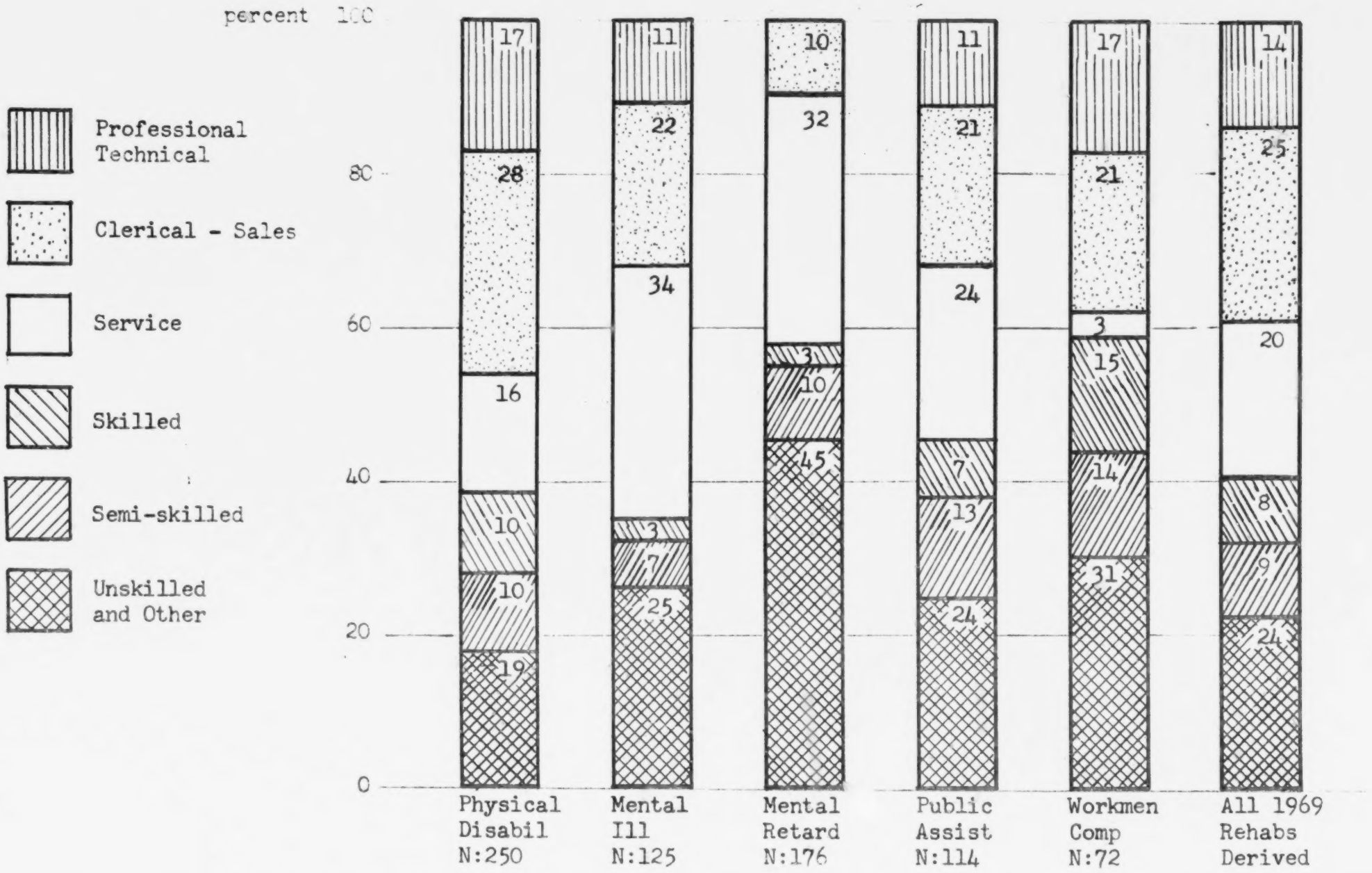

FIGURE 6. TYPE OF EMPLOYMENT TWO YEARS AFTER REHABILITATION FOR EMPLOYED FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. The program groups differed markedly in types of employment at follow-up. Over 45 percent of the Physically Handicapped were in professional-technical and clerical occupations compared with less than 10 percent of the Mentally Retarded. One-third of the Mentally Ill and Mentally Retarded groups were in service occupations compared with only three percent of the Workmen's Compensation group.

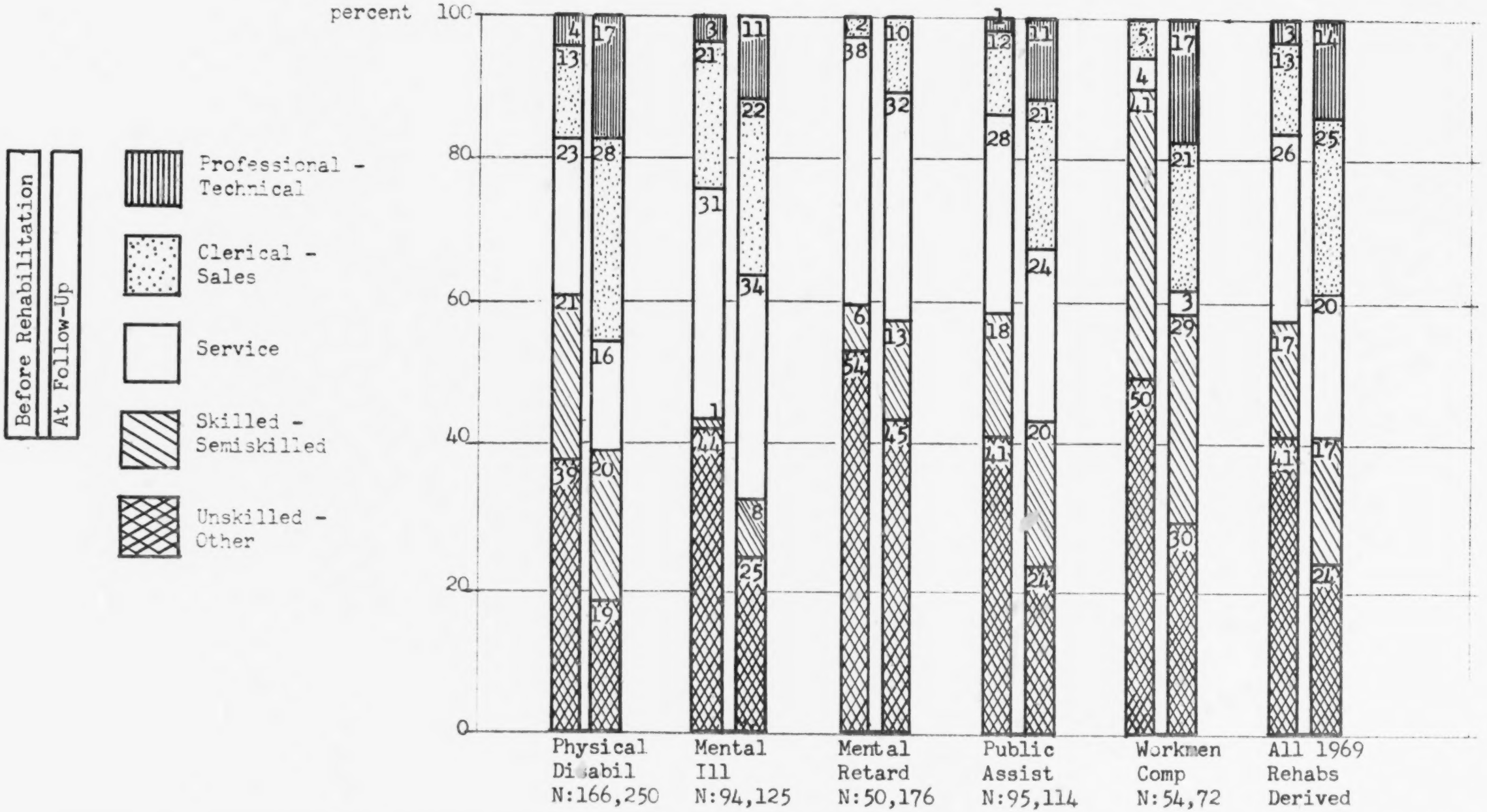

FIGURE 7. PERCENTAGES OF EMPLOYED FISCAL YEAR 1969 REHABILITANTS IN DIFFERENT TYPES OF OCCUPATIONS BEFORE REHABILITATION AND TWO YEARS AFTER REHABILITATION BY PROGRAM. Some rehabilitants held employment at sometime in the 12 months before receiving services. This figure compares types of occupations held by those who were employed at some time before rehabilitation with occupations held by employed rehabilitants at follow-up. In general, percentages in Professional - Technical, and Clerical - Sales occupations are higher; percentages in Unskilled occupations are lower. The program groups differ markedly in types of employment at follow-up.

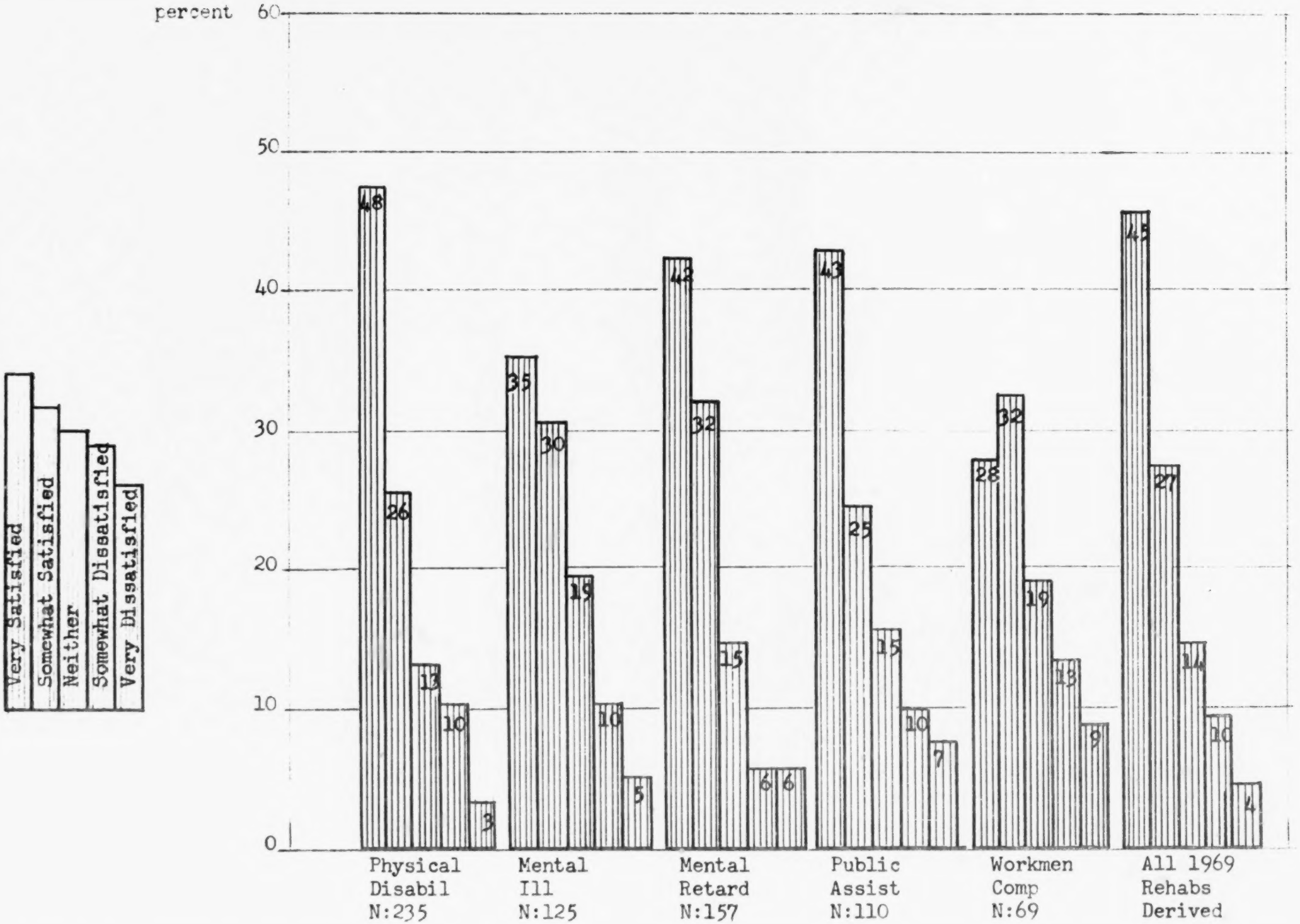

FIGURE 8. REPORTED JOB SATISFACTION FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. At the time of follow-up, about 70 percent of all rehabilitants reported they were very satisfied or somewhat satisfied with their employment. Approximately 15 percent reported they were somewhat dissatisfied or very dissatisfied. The Workmen's Compensation recipients tended to report less satisfaction than the other groups.

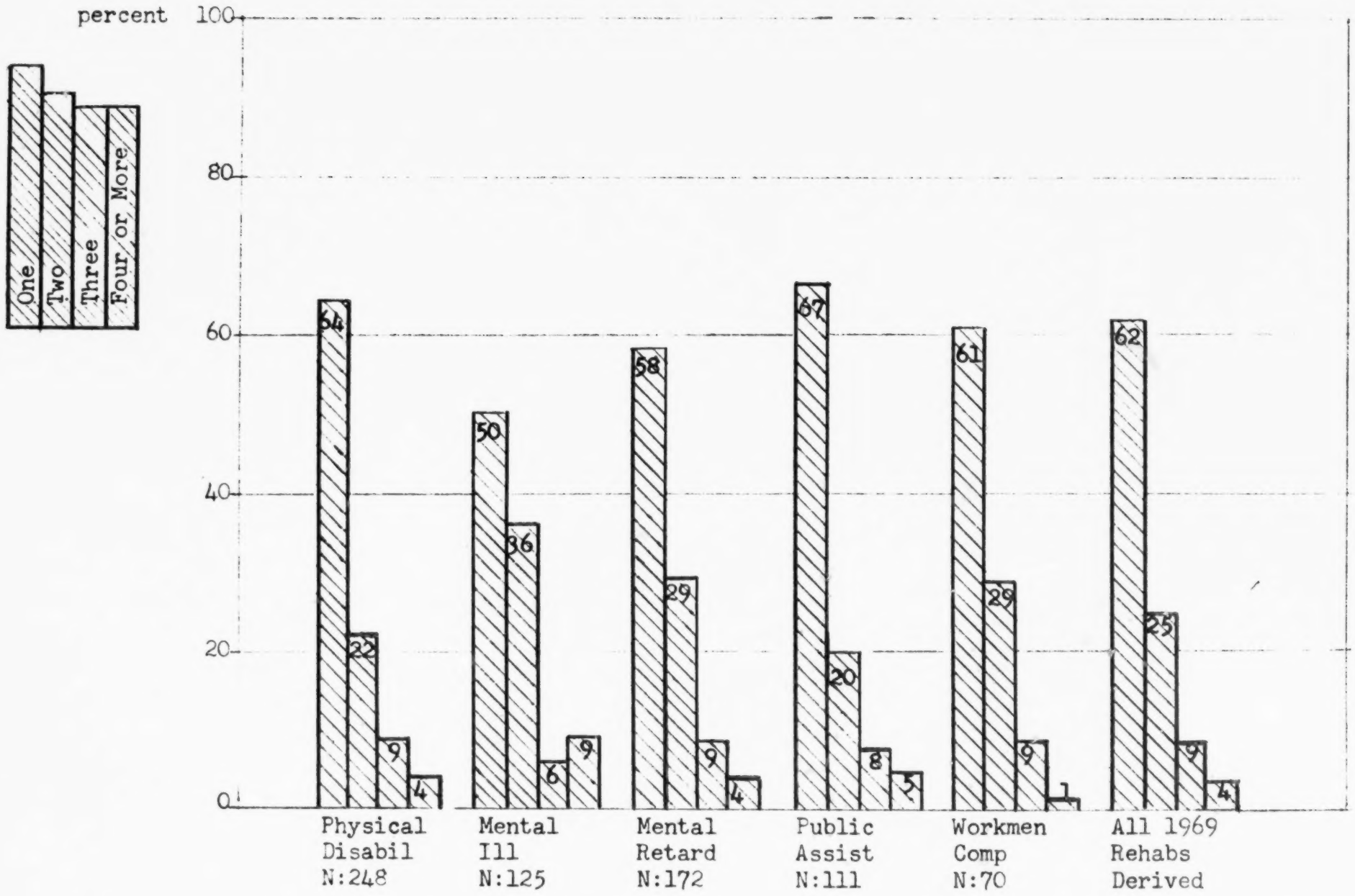

FIGURE 9. NUMBER OF JOBS HELD SINCE CLOSURE FOR FISCAL YEAR 1969 REHABILITANTS PRESENTLY EMPLOYED BY PROGRAM. Among rehabilitants employed at follow-up over 80 percent had held one or two jobs, an indication of substantial employment stability. The Mentally Ill group showed a tendency toward more job changes.

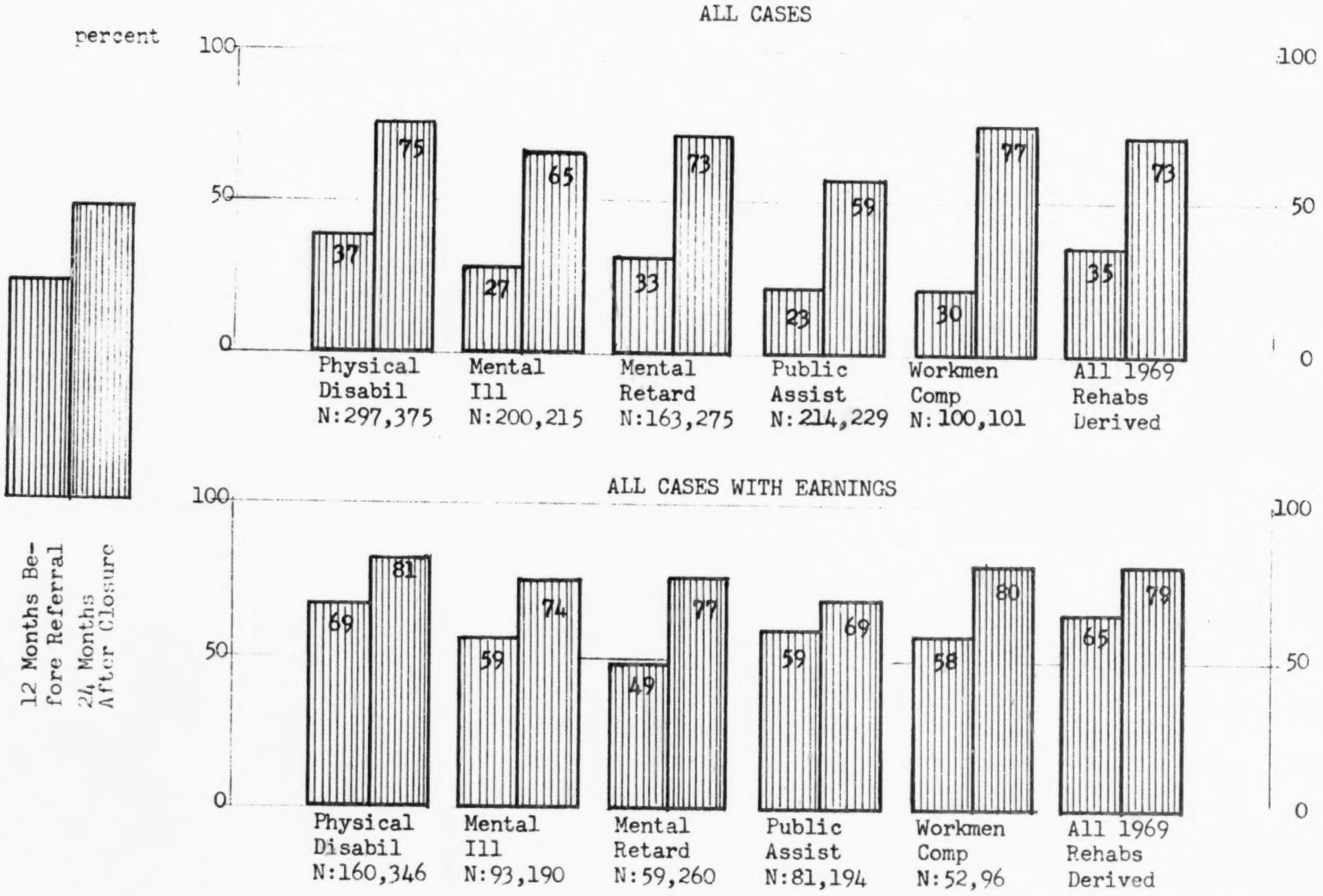

FIGURE 10. PERCENTAGE OF TIME EMPLOYED BEFORE AND AFTER REHABILITATION FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. Rehabilitants in all of the programs showed a greater percentage of time in employment during the 24 months after rehabilitation than during the 12 months before their application for services. Persons who were identified as students when referred for services were not included in this calculation as they had not yet entered the labor market.

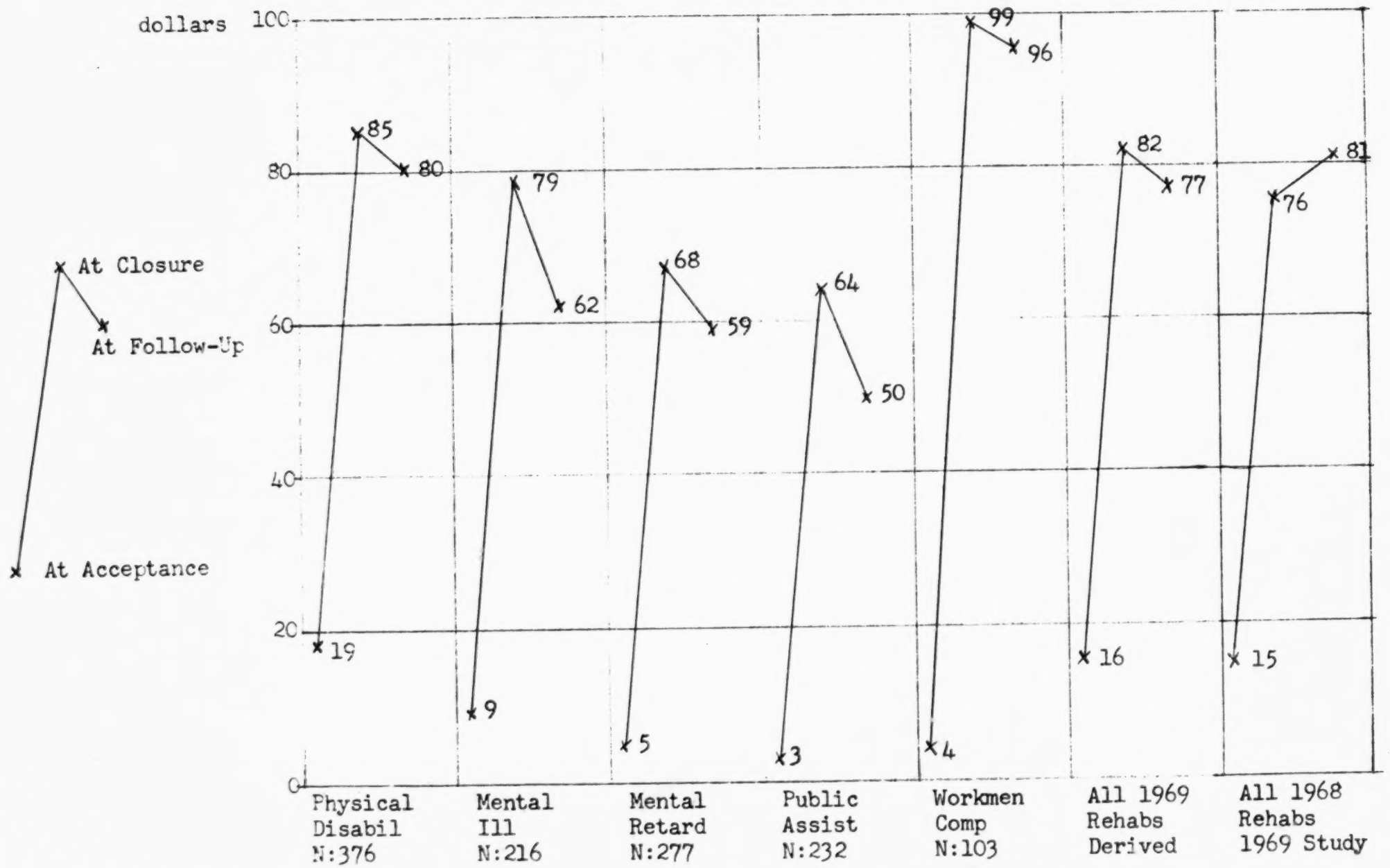

FIGURE 11. WEEKLY EARNINGS PER REHABILITANT FOR FISCAL YEAR 1969 REHABILITANTS AT ACCEPTANCE FOR SERVICES, CASE CLOSURE, AND FOLLOW-UP BY PROGRAM. Earnings averaged over all rehabilitants rose dramatically from the point of acceptance for rehabilitation to case closure, because most clients were unemployed when accepted for services. Earnings per person declined somewhat after rehabilitation, because some rehabilitants failed to maintain their employment. In the previous year earning increases for the employed exceeded losses due to unemployment. Earnings per person remain substantial, indicating that the total productivity of all the groups has increased significantly. The levels reveal clear differences among the program populations.

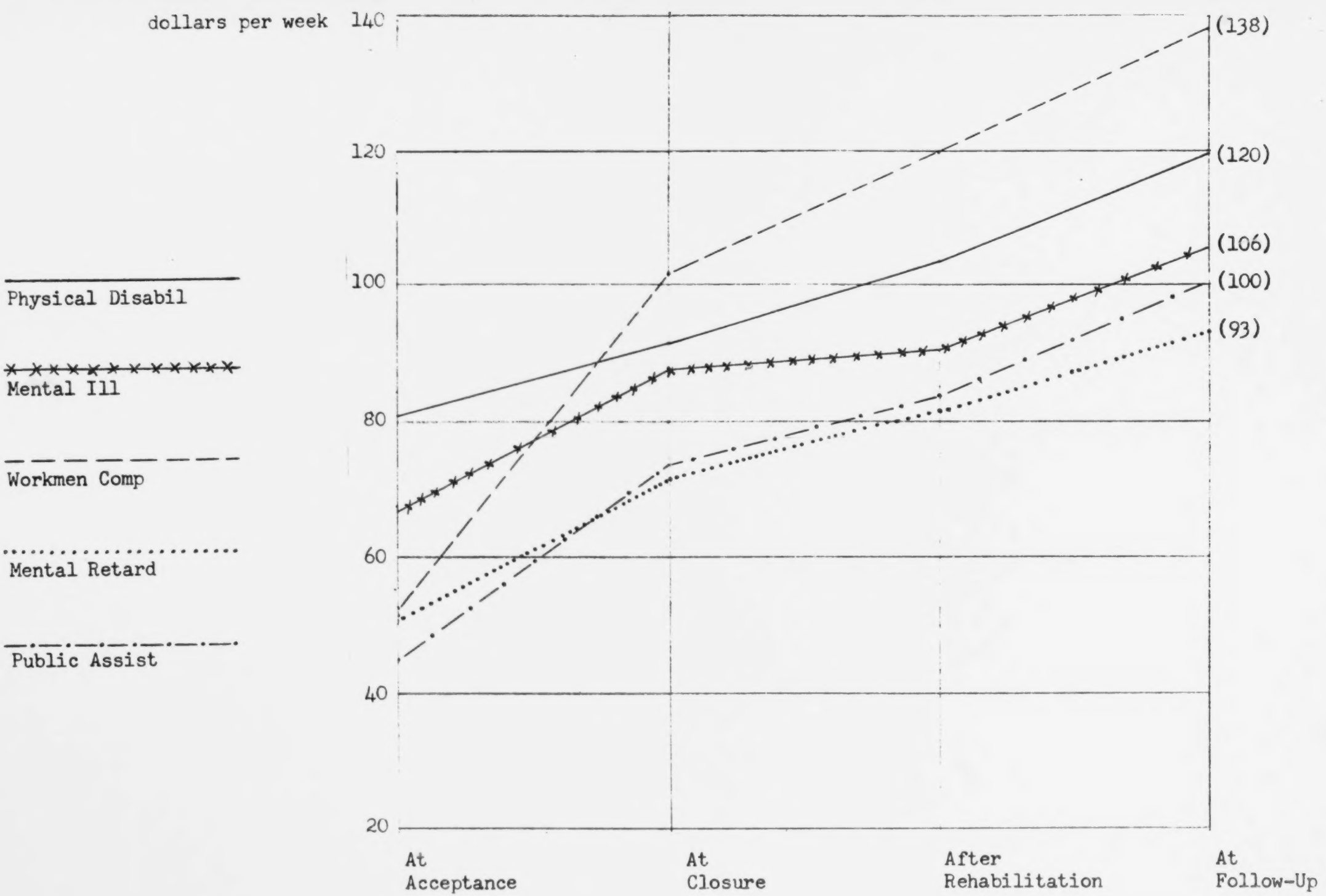

FIGURE 12. AVERAGE WEEKLY EARNINGS FOR FISCAL YEAR 1969 REHABILITANTS EMPLOYED AT ACCEPTANCE FOR SERVICES, AT CLOSURE, AND AFTER REHABILITATION. Average weekly earnings for persons employed at various times during the rehabilitation process reveal that employed rehabilitants at follow-up were earning more than employed persons at earlier stages of rehabilitation. There are observable differences among the groups. Workmen's Compensation Recipients who were employed at acceptance had low earnings, but those employed at later periods had higher average earnings. The Mentally Retarded group tended to show smaller gains than the others. It should be remembered that many more persons were employed after rehabilitation than before at the rates indicated.

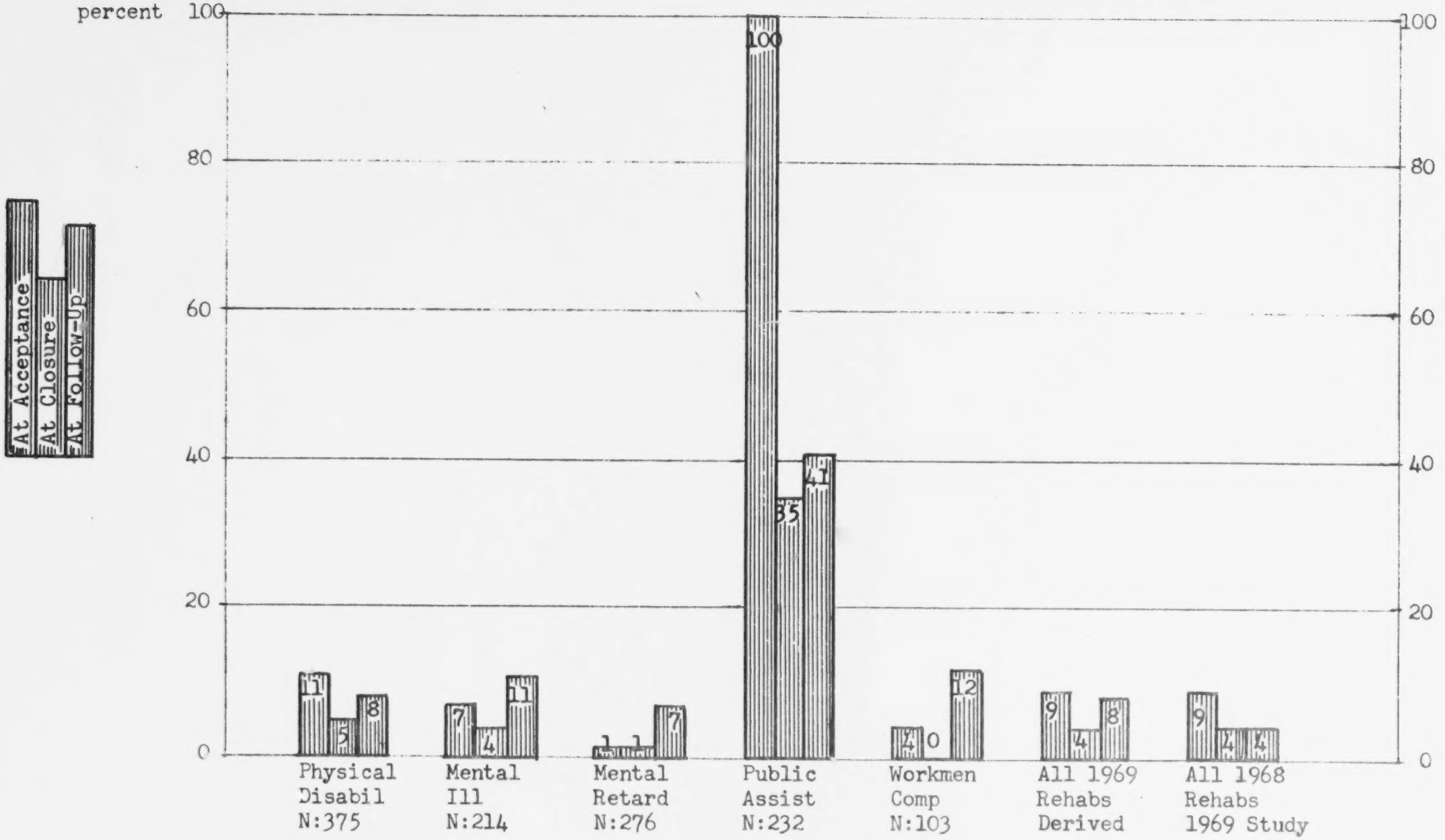

FIGURE 13. PERCENTAGES OF FISCAL YEAR 1969 REHABILITANTS RECEIVING PUBLIC ASSISTANCE AT ACCEPTANCE, AT CLOSURE AND AT FOLLOW-UP TWO YEARS LATER BY PROGRAM. Approximately 10 percent of all rehabilitants were dependent upon Public Assistance when accepted for rehabilitation services. They comprise Study Group 4. Most of these clients (60%) were removed from welfare rolls and remained independent of assistance two years later. Other rehabilitants, not previously receiving Public Assistance, showed increased needs for assistance. At the time of the survey the total number receiving aid approached the initial rate. This is in contrast to the results one year before where gains were maintained. The trend reflects a trend among all workers which saw the number of persons receiving assistance in Michigan increase by 67 percent from December, 1969 to December, 1970 (Social Service Statistics, December 1970).

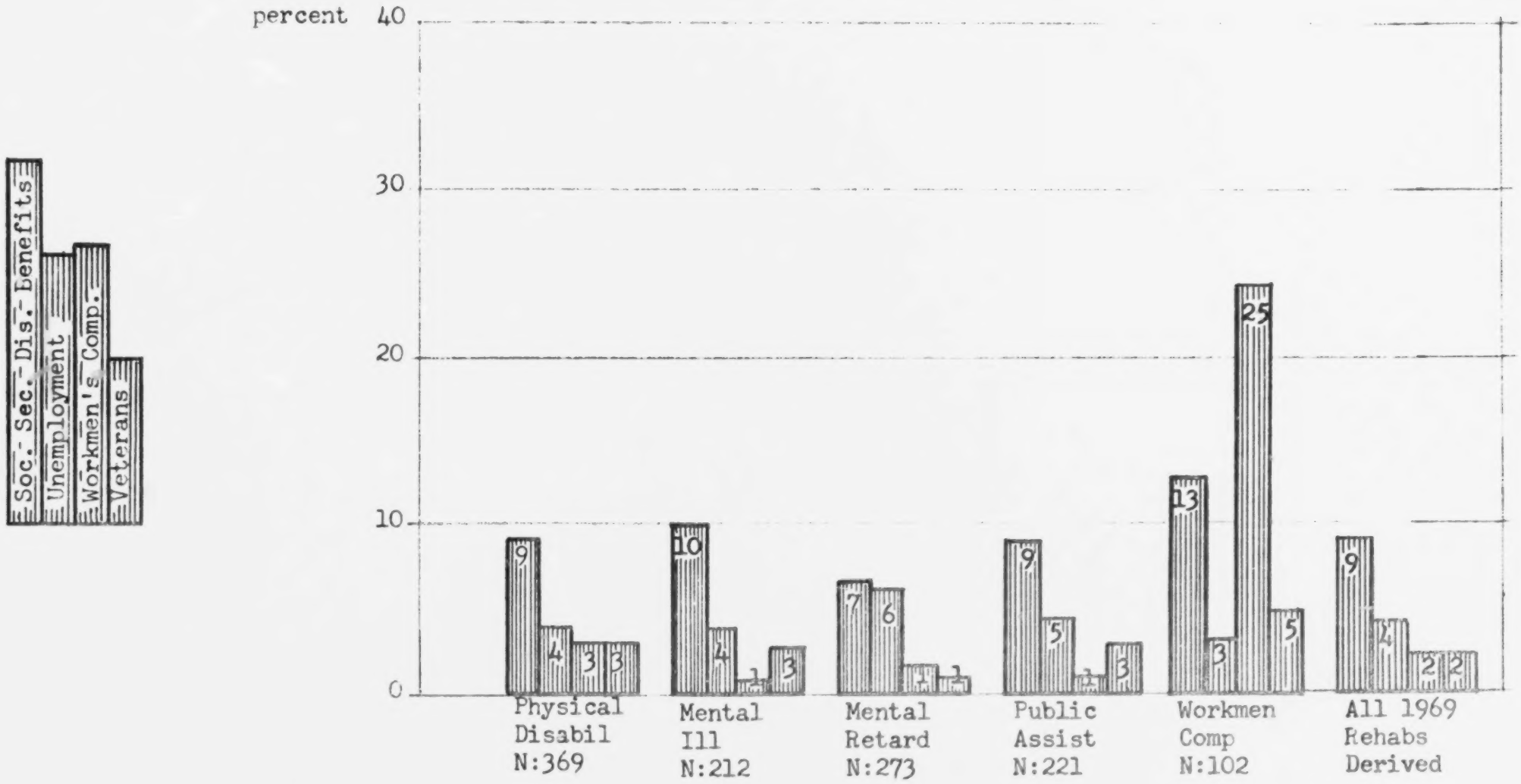

FIGURE 14. SELECTED OTHER INCOME SOURCES REPORTED TWO YEARS AFTER REHABILITATION BY FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. Relatively small percentages of rehabilitants reported they were currently receiving Social Security Disability Benefits, Unemployment Compensation, Workmen's Compensation or Veteran's Benefits. However, in the Workmen's Compensation group over 20 percent reported receiving workmen's compensation and over 10 percent reported receiving social security disability benefits. The results are based on small numbers of responses, and should be confirmed in future studies.

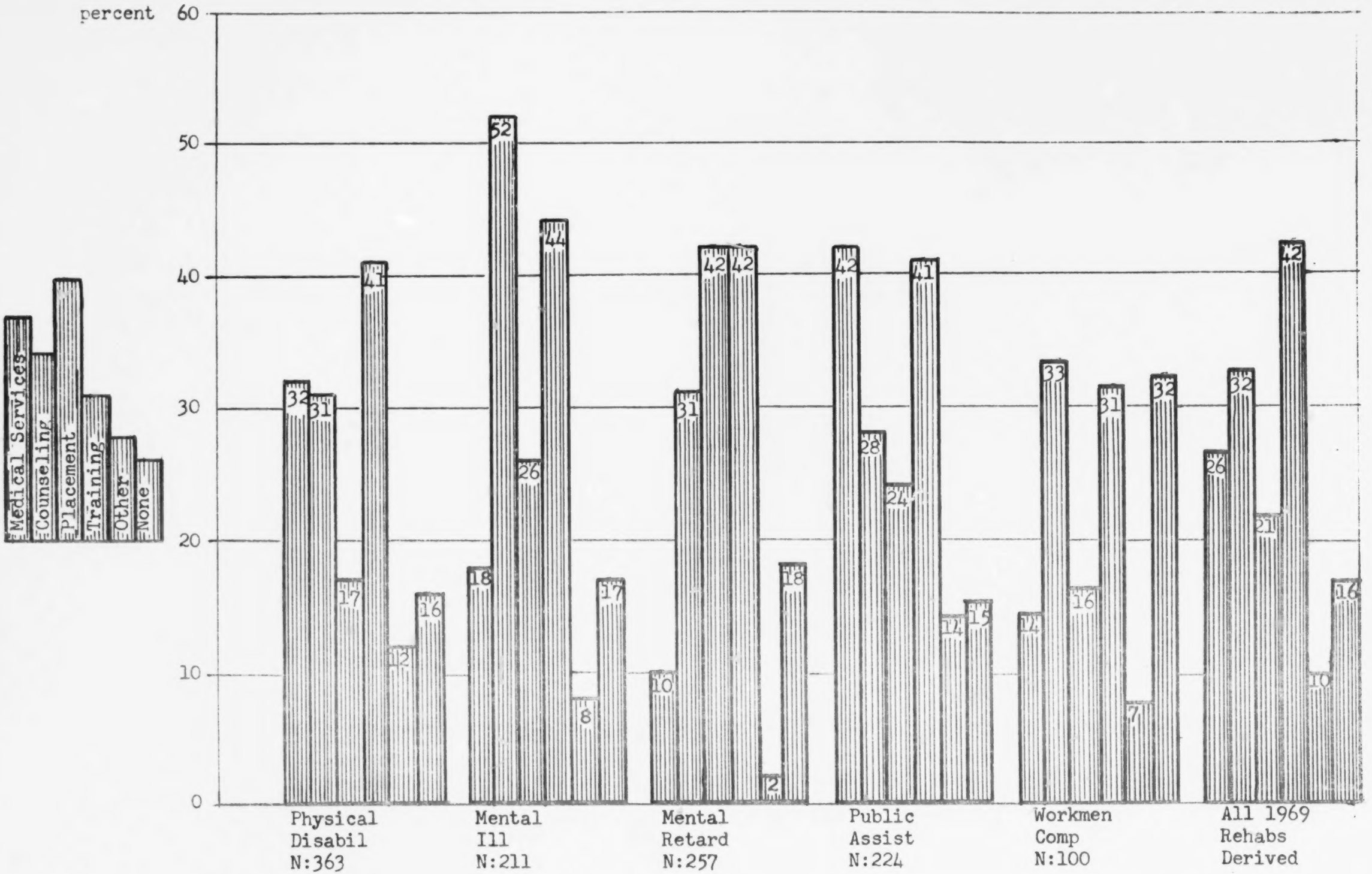

FIGURE 15. SERVICES RECALLED AS HELPFUL BY REHABILITANTS BY PROGRAM. The respondents were very productive in naming services they recalled as helpful. Training was mentioned by over 40 percent and was the service most often named. Counseling was named by about one-third of the respondents. About 15 percent reported they recalled no services which were helpful. The percentage recalling no service was higher among the Workmen's Compensation group.

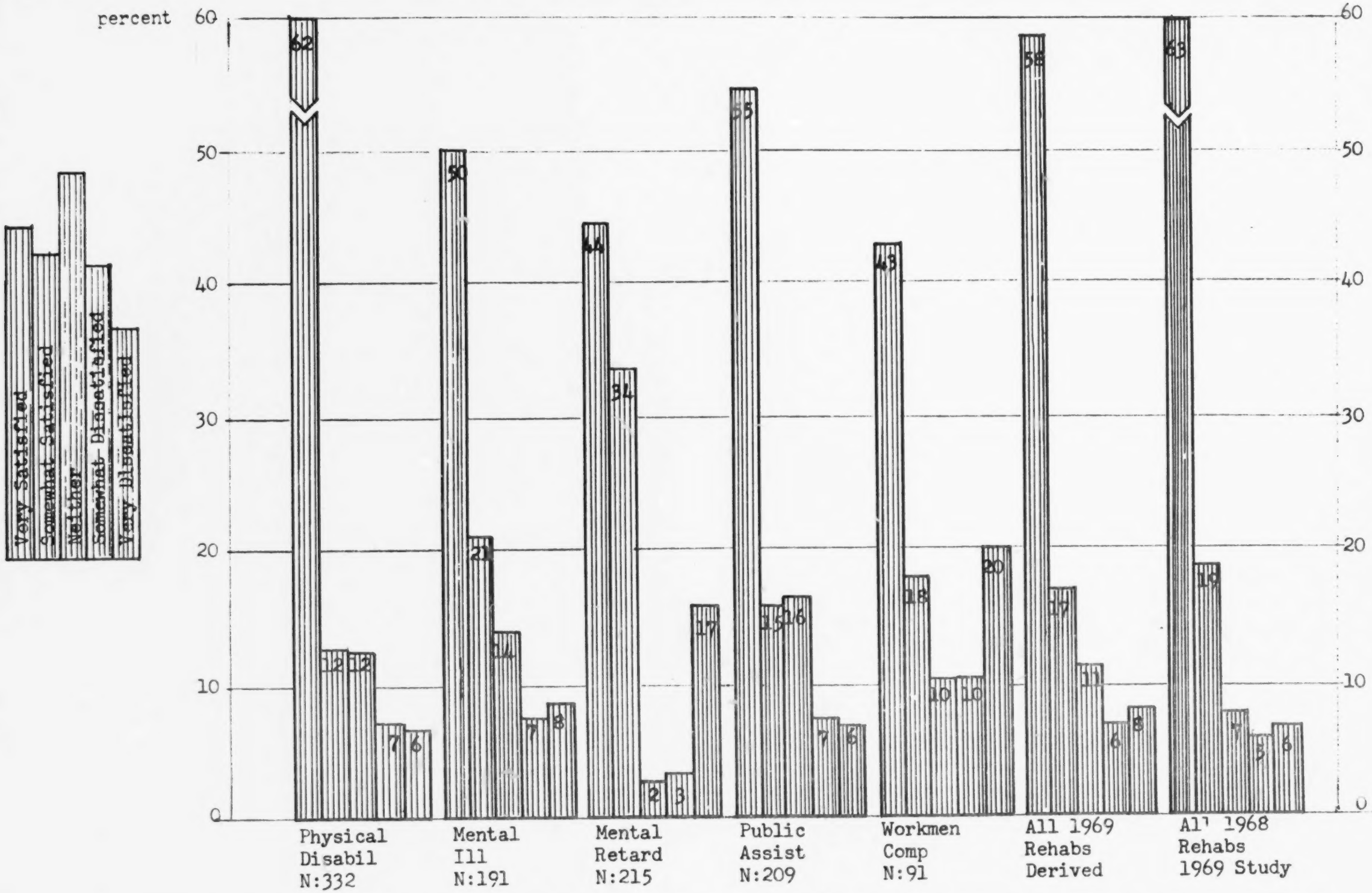

FIGURE 16. REPORTED SATISFACTION WITH SERVICES FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. Almost three-fourths of the rehabilitants reported satisfaction with their rehabilitation services -- a somewhat smaller proportion than for the 1968 rehabilitants. The Workmen's Compensation recipients and the Mentally Retarded group tended to report less satisfaction with services.

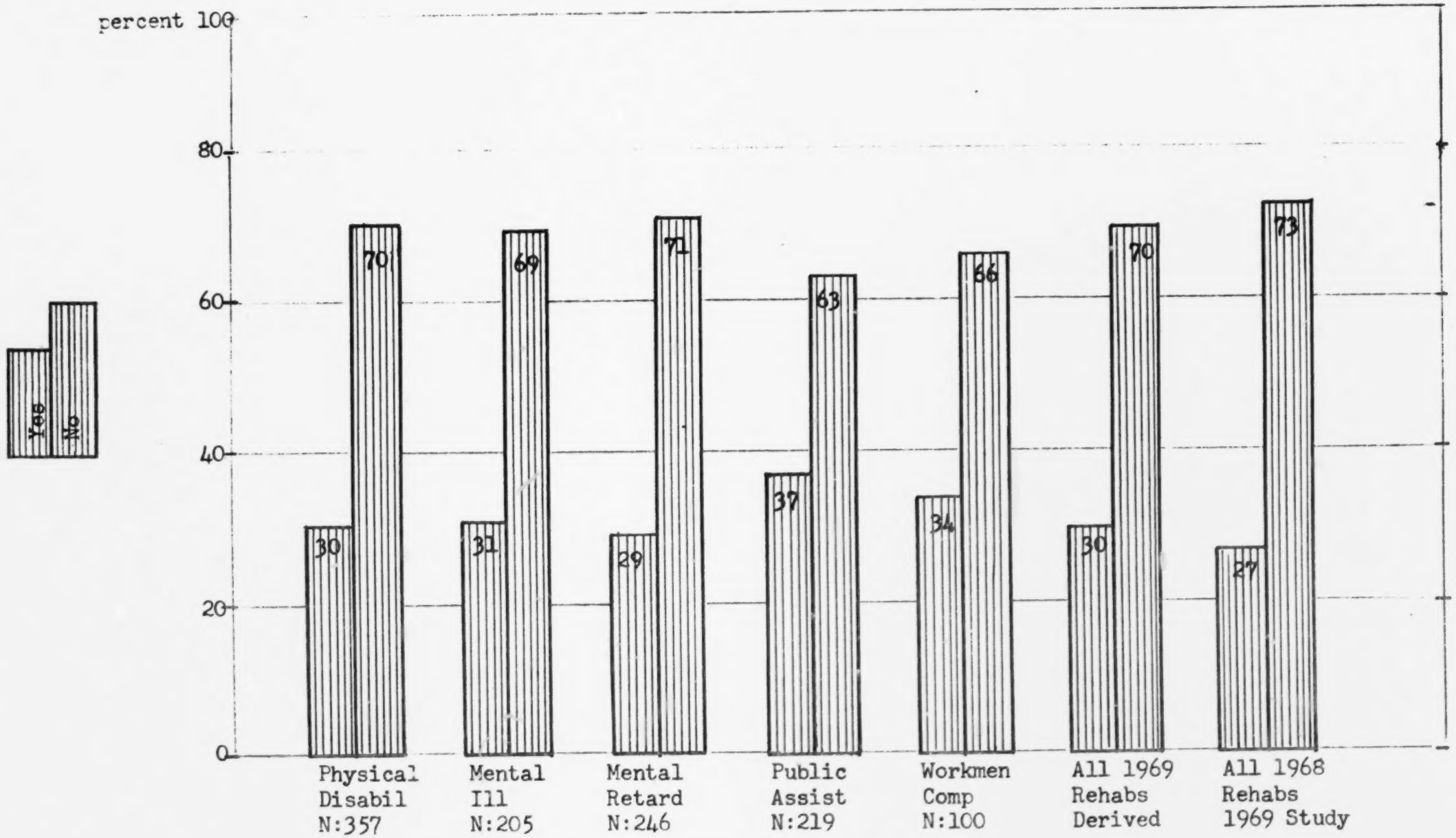

FIGURE 17. PERCENTAGE OF FISCAL YEAR 1969 REHABILITANTS EXPRESSING DESIRE FOR ADDITIONAL SERVICES TWO YEARS AFTER REHABILITATION BY PROGRAM. Approximately 30 percent of all 1969 rehabilitants answered yes to the question "Do you need further services from the Division of Vocational Rehabilitation at this time?". The percentage was somewhat higher than for the study of 1968 rehabilitants conducted a year before. The rate was relatively uniform among the program groups, but was highest among the Public Assistance recipients. The requests are reviewed individually as some are inappropriate in terms of agency services and client circumstances.

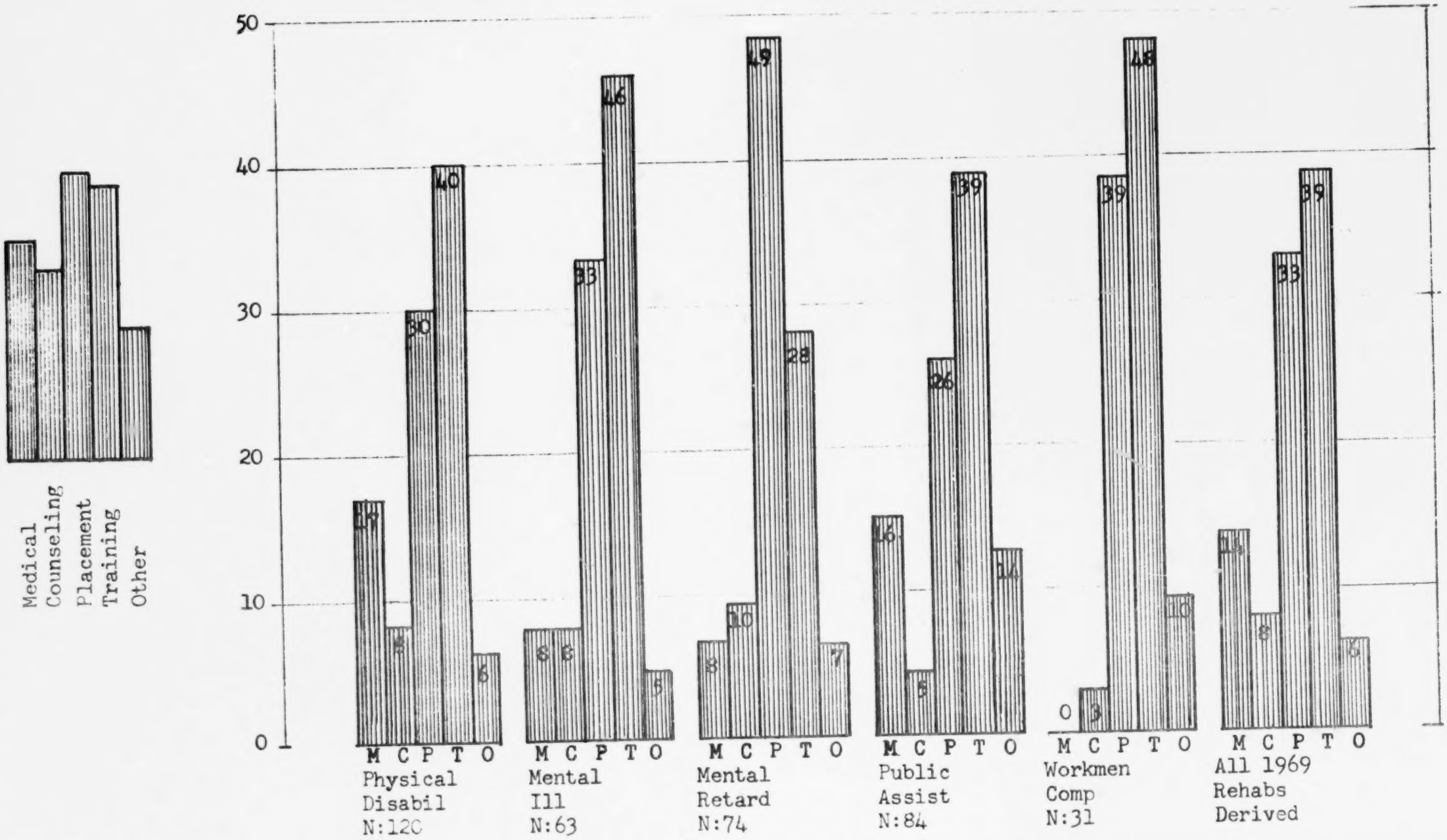

FIGURE 18. TYPES OF REHABILITATION SERVICES REQUESTED BY FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. When all service requests were examined by program, it was found that about one-half were requests for training. Over one-third were requests for job placement assistance. The requests from the Mentally Retarded group were in reverse order; more requests were for placement assistance and fewer were for training. There are several differences in patterns among the different programs.

COMMENTS FROM REHABILITANTS

"Vocational Rehabilitation has given me, I hate to use a cliche', "A new lease on life". Their training, and the following success with my job, has enabled me to become a contributor rather than a burden. I could never say thank-you enough for having a future to look forward to, . . ."

"When I received help I was divorced from my children's father and this help in schooling helped me find a job where I could support my two children and myself and get me off A.D.C. It also helped make a better person of me in that it also built up my confidence."

"I feel I have shown improvement in my present employment and am still hoping that I will improve enough to hold down a better job at which time I might like the services of Voc Rehab again. Thank you . . ."

"I took exams at the employment office. I was told there were not enough funds to train me at that time. That was the last I heard. I received no training!"

"At present I am employed full time in two hospitals. The first job I ever got in a hospital was through the Voc Rehab, and am very thankful to them. They were of great support to me at the time I was in need of it inasmuch as I was just leaving the psychiatric unit where I was for two years."

"Thank you for asking me to answer these questions of importance. I received excellent service at "Vocational Rehabilitation". I'm fairly satisfied with my job at _____ right now. We only work a 40 hour week with relaxation coming on the week-ends. God bless you . . ."

"I received assistance for about 10 months, 1 month counseling and 9 months schooling. I found I didn't have the time or patience to go to school. The job I have now has nothing to do with DVR. The psychiatric test helped me the most. They gave me the confidence to look for a job and do it well."

"I would like to state that I know that the services and training I received through counseling from vocational rehabilitation enabled me to find excellent employment for I received training as a key-punch operator thereby."

"I was headed for a nervous breakdown and the counseling I received helped me in getting my feet back on the ground. The men who worked with me were great, and I appreciate there time and effort."

"I took up welding at the Rehabilitation school so I was qualified to weld. I have been employed steady four years next month except for two weeks layoff during strike three years ago. I am grateful to all that help me in this training."

"Dear Sirs, My son needs no services at this time. Your services were very helpful in teaching Clare to run and operate the things he needs to do his job with. And I am sure that 4 years of work in the same place answers your questions. And we are very thankful for the wonderful opportunity he was given."

"If it had not been for the counseling and the help received from my DVR coordinator, I would not be holding the position or the self-confidence that I have today. If I had realized just how much more I could have advanced through my own initiative and DVR's help I certainly would done more."

"The program was very beneficial to me and I appreciate all the help I received. Thank you."

"I would appreciate further education in a field where the need is greater and I will be of some service to mankind -- Such as an LPN. I appreciate the education which I have received from you but, I'm afraid that education doesn't stop people from being suspicious of a person who has been in the state hospital."

"I like my job with the Post Office. It is the best job I ever had."

"Division of Vocational Rehabilitation done its job very fine. My training opened a whole new life for me and my family. We thank you very much. We wish that more assistance will become available too future students."

V. BENEFIT/COST ANALYSIS

Benefit/cost analysis provides a means to estimate the economic impact of vocational rehabilitation programs. It seeks to make explicit the economic benefits and costs which derive from the program. The first benefit/cost analysis involving the operation of Michigan DVR was reported in April, 1970. It dealt with Fiscal Year 1968 rehabilitants. The report of that study, A Benefit/Cost Analysis of Vocational Rehabilitation Programs in the State of Michigan, described in detail the rationale and methodology involved in the development of the benefit/cost model used by DVR. The model as utilized in this study is presented in Appendix D. What follows is an outline of the method, and a description of modifications utilized in the present study.

LIMITATIONS OF BENEFIT/COST STUDIES

Benefit/cost analysis is an application of the systems approach to economic analysis, and is probably the most sophisticated tool available for assessment of public service programs. However, in its application to such programs, it has been described as being at this time more of an art than a science. Three national studies have been reported, and they provided much of the rationale and some of the data used by this agency. The first model for Michigan DVR was developed by David Dunlop, and the second, utilized in the 1969 study, was devised by Earl Wright. These publications and studies are listed in Appendix D. The DVR models have been submitted for critical review to professional persons throughout the country, and suggested changes are incorporated as appropriate and feasible.

The B/C method attempts to provide estimates of future benefits, which in itself renders the results tenuous. Moreover, the estimates are made on the basis of extremely limited performance data, especially concerning the long term experiences of disabled persons, both rehabilitated and non-rehabilitated. Due

to the limited data base, it is necessary to make numerous assumptions which may influence the final results of the analysis. An attempt is made to make the necessary assumptions as explicit as possible, and the agency is actively working to improve the information which is available.

It must be remembered that B/C studies measure only economic benefits and not humanitarian or social benefits which may accrue as the result of rehabilitation services. For many, the improvement in personal well-being, both mental and physical, is perhaps a more ample justification for the existence of rehabilitation services than the economic benefits which derive. For others, a crucial problem may be the cost to society which may result if services are not provided to persons in need. The importance of these benefits is such that some rather obvious ones are listed here.

1. Benefits to the rehabilitated client

   a. Improved communication skills
   b. Improved physical mobility including more vitality and better health
   c. Improved personal adjustment. This includes improved personal relationships and ability to participate more fully in everyday affairs.
   d. Job satisfaction with proper rehabilitation placement. The client is no longer required to work in a job which overtaxes his strength or is unhealthful or unsafe for him.

2. Benefits to family and friends

   a. A higher standard of living
   b. Improved family ties and higher probability that family units will remain together
   c. Improved care of children. The children of the rehabilitated can be more adequately cared for and supervised, which may prevent many potential health and behavior problems and break a potential cycle of public dependency.
   d. Lessened concern about the disabled youngster. Parents of young adults who are disabled often live in a state of concern over the future of their offspring. A degree of peace and solace may come with the knowledge that the person can become self supporting and relatively independent.

3. Benefits to the community

   a. Rehabilitated persons take their place as contributing members to community activities. They may also help to reduce labor shortages in particular occupations.

While the benefits listed above are largely unmeasurable, they should not be ignored in considering the potential outcome of rehabilitation. It should be remembered that benefit/cost analysis is of limited scope, and should not provide the sole criterion for program planning decisions.

THE PERSPECTIVE AND ASSUMPTIONS OF THE MODEL

Benefit/cost analysis can be conducted from at least four major perspectives. These are:

1. Society as a whole
2. The individual who is a service recipient
3. The employer of the rehabilitant
4. The government or its agencies which provide the services.

The model used by Michigan DVR is conceived as a representation of the agency point of view. It incorporates measurements concerned with the objectives which the agency seeks to achieve. The primary objectives are:

1. To make it possible for handicapped persons to engage in a gainful occupation
2. To enable the handicapped person to become free of dependence upon public assistance.

The model used in this analysis reflects these direct concerns of the agency rather than a broad social perspective which has been considered by some authors.

In addition to the restriction that the model represents the perspective of the agency, it is necessary to assume that all the benefits and costs in the model are explicitly attributable to the vocational rehabilitation process. The essential comparison in the benefit/cost model is between the status of the rehabilitant before receiving services and after receiving services from DVR. Thus, changes in earning status and projected earnings over working life are assumed to have resulted from vocational rehabilitation.

It is also true, however, that the benefit/cost model used by this agency includes the costs of serving persons who are not rehabilitated by the agency,

but does not include any value for possible benefits which may accrue to non-rehabilitants. Counseling is provided to persons who apply for rehabilitation services, and in some cases may result in employment even though the applicant may not continue his contact with the agency. Likewise, clients may discontinue the rehabilitation process for a variety of reasons, but may at a later time utilize skills or information gained during rehabilitation to enter or resume employment. Unmeasured benefits to such individuals may equal or exceed benefits which are claimed for rehabilitants but which are not solely attributable to the services provided.

THE FORMAT OF THE MODEL

The general format of the model is:

$$\text{Benefit/cost ratio} = \frac{\text{(Total value of all benefits in \$)}}{\text{(Total value of all costs in \$)}}$$

$$R = \frac{B_1 + B_2 + \ldots + B_n}{C_1 + C_2 + \ldots + C_n}$$

$$R = \frac{B_n}{C_n}\text{, where n is any number benefit or cost}$$

Where:

B_1 = Net increase in lifetime earnings

B_2 = Net decrease in economic dependency

C_1 = Total program costs of rehabilitation

The model is identical to the one used in the previous vocational rehabilitation benefit/cost study, with the exception that a third benefit and a second cost have been deleted. They are discussed in a later section.

DISCUSSION OF SPECIFIC BENEFITS AND COSTS

B_1 — Net Increase in Lifetime Earnings

The primary benefits associated with vocational rehabilitation are increased

employment and increased earnings. The increase in proportion of time employed and rate of earnings is reflected in a net increase in lifetime earnings. The main factors considered in deriving an estimate of the net increase in lifetime earnings of rehabilitated clients are:

1. The annual rate of earnings during the year prior to acceptance.
2. The annual rate of earnings after receiving rehabilitation services.
3. The number of years of remaining worklife.
4. The real rate of growth of earnings. (The rate of productivity increase before and after rehabilitation.)
5. The rates of attrition before and after rehabilitation. (The rate at which death and new or recurring disability causes termination of employment through the years.)
6. The present value of future earnings or social time preference rate.

The increase in lifetime earnings is calculated by projecting earnings after time of closure over the estimated number of years of remaining worklife of the client. The earnings after case closure are multiplied by the real rate of earnings growth and the rate of attrition over the lifetime of the client. From this amount is subtracted the projection of lifetime earnings based on the rate of earnings during the year prior to acceptance. This projection is calculated by taking the average earnings prior to acceptance multiplied by the rate of growth of earnings for clients without rehabilitation and the attrition for clients had they not received rehabilitation services. The difference is then discounted by a rate which will give the present value of the anticipated future earnings. In a descriptive format, Benefit 1 would appear as follows:

$$B_1 = \frac{\left(\begin{matrix}\text{Number}\\ \text{of}\\ \text{Clients}\end{matrix}\right) * \left[\left(\begin{matrix}\text{Ave. Income}\\ \text{at Closure}\\ \text{per Client}\end{matrix}\right) * \left(\begin{matrix}\text{Attrition}\\ \text{Rate}\end{matrix}\right) * \left(\begin{matrix}\text{Growth}\\ \text{Rate}\end{matrix}\right)\right] - \left[\left(\begin{matrix}\text{Ave. Income}\\ \text{at Acceptance}\\ \text{per Client}\end{matrix}\right) * \left(\begin{matrix}\text{Attrition}\\ \text{Rate}\end{matrix}\right) * \left(\begin{matrix}\text{Growth}\\ \text{Rate}\end{matrix}\right)\right]}{\left(\begin{matrix}\text{Discount}\\ \text{Factor}\end{matrix}\right)}$$

Rate of Earnings Prior to Rehabilitation. Income at acceptance is utilized to represent the client's expected earnings if he had not received rehabilitation. However, it is assumed that the working history during the twelve months preceding

application for services is a more accurate representation of employment capability than earnings at the point of acceptance. Presumably, the client is more likely to seek services at a time when he is unemployed. The calculation is made by multiplying the number of weeks worked in the 12 months prior to application for services by the average weekly pay and averaging over all cases. This method provides a higher estimate of expected earnings than would be true if they were calculated from the rate at time of acceptance. It provides a more conservative estimate of the impact of rehabilitation, and recognizes that some individuals could obtain some earnings without rehabilitation services. In addition, in this study persons identified as students at the time of acceptance for services were left out of the calculation on the assumption they were not in the labor market during the 12 months prior to rehabilitation due to age and school. The earnings histories are compiled from agency case records.

Rate of Earnings After Rehabilitation. The rate of earnings following closure is estimated in a similar manner to the earnings before acceptance. The percentage of those having some employment is multiplied by the average earnings per week of those employed and the average number of weeks worked per year during the two-year follow-up period. The calculated earnings provide the basis for projection of lifetime earnings. It should be noted that utilizing a two-year interval as the basis for estimating earnings after rehabilitation provides a rather generous time period in which clients can establish an earnings pattern. The two-year interval provides a conservative estimate compared with utilizing earnings at closure or even earnings after the following one-year period. Data for this calculation are derived from the follow-up study.

Years of Remaining Worklife. In the previous study, 25 years was used as an estimate of the years of remaining worklife after case closure for rehabilitants. This is a conservative estimate as the average age for rehabilitants at time of

acceptance is 30, and the average length of time from referral to rehabilitation is 20 months or approximately 2 years. Thus, if retirement age is assumed to be 62, a figure used in the Department of HEW study, the typical rehabilitant would have 30 years of working life after case closure.

In the current study, a retirement age of 62 is assumed, and the expected years of working life are calculated for each of the six program populations under study using the average age for that group. A time period of two years is deducted for the rehabilitation services. With this method, groups who receive services at an earlier age tend to show higher benefit/cost ratios. It was an important difference in this study as average ages at acceptance among the groups varied from 19 to 37.

Attrition Rate. Both death and new or recurrent disabilities take their toll of rehabilitated clients in the years after rehabilitation. The number of clients still employed in any given year is needed to determine the aggregate amount of earnings for that year. The development of accurate rates over the expected working life of rehabilitants could be accomplished only with a very long term follow-up of rehabilitants, and even then the results would remain problematical as predictors of future rates. Estimates of attrition rates were made for the U.S Department of HEW cost/benefit analysis on the basis of the most pertinent data available concerning death rates and rates of further disability. The estimates are used for this study. The rate of attrition applied for preservice earnings is greater than that applied for postservice earnings to reflect the assumption that rehabilitated individuals will tend to experience lower death rates and lower rates of disability than would have been true if they had not received rehabilitation.

Real Rate of Growth of Earnings. It is assumed that increases in future years in the productivity of rehabilitated workers will be reflected in their earnings. Long-term data to establish the actual rate of earnings increases for

rehabilitants are not available. However, rehabilitants tend to be younger workers who are placed in employment where their disabilities prove least handicapping, and it is assumed that their rate of earnings growth is equal to the general population of workers. Follow-up studies conducted by the Michigan Division of Vocational Rehabilitation have indicated that during the first two years after rehabilitation former clients show wage increases well above those of the average worker. However, in order to provide a conservative estimate of benefits and to recognize that growth rates will probably not be as large in the later years of working life, the value utilized in this study is based upon the rate derived by the U.S. Department of HEW. A slightly lower rate, also based upon the HEW study, is utilized to project lifetime earnings based upon pre-rehabilitation earnings. The values are the same as used in the previous DVR benefit/cost study. As more experience is gained with Michigan rehabilitants, it will be possible to use differential rates by sub-groups.

Discount Rate. A discounting factor is used in the equations to place a lower value upon benefits to be realized in the future than upon benefits or costs incurred in the present. It may also be used to indicate that funds spent in the rehabilitation program are not then available for expenditure in other programs or in the private sector of the economy. The discount estimates the opportunity cost of choosing among the alternative investments.

There is no general agreement among authorities as to what rate of discount should be used, or whether one should be used. A discount rate does, however, provide a more conservative estimate of gains, and has been used in some of the reported studies. The rate used for this study (6 percent) is higher than that used in the HEW study, and is considered a reasonable rate.

Loss of Earnings While Engaged in Rehabilitation. An additional adjustment is made for the benefit of increased earnings which was previously included in the formula as a second cost. It is common to consider that when a person enters

a training program he foregoes earnings which he might have realized if he had not withdrawn from the labor market. Some economists have ascribed a substantial value to the client's assumed foregone earnings and considered it a cost of rehabilitation. It would be consistent with the logic of this study to assume that clients could be expected without rehabilitation to earn during the 16 month rehabilitation period at the average rate they enjoy during the year before application for services. It is the view of this study that the amount of foregone earnings for rehabilitants is actually very low. Clients usually come to DVR at a point when they are having employment problems. Their earnings are lower at this point than during most of the year preceding, often due to disability, and it is probable they would not establish their previous average during the months devoted to rehabilitation. Also, most individual rehabilitation plans do not require clients to forego opportunities which might present themselves. Only about one-third of the 1969 rehabilitants were provided training in formal programs. Persons who need medical services would normally have very few alternatives to rehabilitation. Likewise, persons who have such limited skills that they are unable to maintain stable employment are incurring little sacrifice to undergo rehabilitation. A check of 50 randomly selected case folders by two judges revealed only one possible case where the rehabilitant had foregone rather certain earnings to complete an activity involved in his rehabilitation.

Nonetheless, it is true that some persons have employment, however inappropriate, when they are accepted for rehabilitation services. Also, some persons engage in college level programs of some length when they could presumably maintain other employment if it were presented. Therefore, a deduction is made from this benefit in the amount of the percentage of rehabilitation clients engaged in training multiplied by the average weekly earnings in the year prior to rehabilitation and multiplied by the time in rehabilitation (16 months). It is deducted from the earnings benefit as it is considered an adjustment in the benefits from the agency point of view, not a cost to the agency. From the individual

perspective, it would be considered a cost of undergoing training. This adjustment is made in an effort to be as conceptually accurate as possible. The value is a relatively low proportion of the total benefit.

B_2 - Net Decrease in Economic Dependency

The benefit of net decrease in economic dependency is based on the assumption that as clients complete training or physical restoration their requirements for economic assistance from the State are substantially reduced. In this study, decrease in economic dependency is measured only in terms of assistance received through the Michigan Department of Social Services and county welfare offices. Categories included are: Aid to the Blind, Old Age Assistance, Aid to the Permanently and Totally Disabled, Aid to Families with Dependent Children, and General Assistance. It is assumed that rehabilitants are also less dependent upon their families, and in some cases will become independent of such other income sources as Social Security Disability Insurance, Veterans Benefits, Unemployment Payments, or Workmen's Compensation payments. However, such changes are not included in the analysis.

The calculations for estimating the net decrease in public assistance payments are similar to those utilized in estimating changes in lifetime earnings. The principal factors are:

1. Monthly increase or decrease in Public Assistance payments from acceptance for rehabilitation to case closure.
2. Number of years that clients receive Public Assistance payments after rehabilitation.
3. Average annual rate of increase in Public Assistance payments.
4. The attrition rate of clients after rehabilitation.
5. The present value of assistance payments or social time preference rate.

As is the case with earnings, the average annual rate of assistance payments is determined both before and after receipt of rehabilitation services. The net

increase or decrease is projected over the total number of time periods used in the model. Values are modified by the anticipated annual rate of increase in public assistance payments, and the expected attrition rates for the clients. In descriptive model format, this would appear as follows:

$$B_2 = \frac{\left(\begin{array}{c}\text{Number of}\\ \text{Clients in}\\ \text{Sample}\end{array}\right) * \left(\begin{array}{c}\text{Net Decrease}\\ \text{in Public Assist-}\\ \text{ance Payments}\end{array}\right) * \left(\begin{array}{c}\text{Attrition}\\ \text{Rate}\end{array}\right) * \left(\begin{array}{c}\text{Rate of Increase}\\ \text{in Public Assist-}\\ \text{ance Payments}\end{array}\right)}{(\text{Discount Factor})}$$

Decrease in Public Assistance Payments. As with client earnings, the amounts of Public Assistance received were estimated for the 12 months prior to rehabilitation and for the 24 months after rehabilitation. However, histories of Public Assistance before rehabilitation were very poor, and the data were supplemented by estimates based upon Michigan Department of Social Service reports and DVR client profile information. The rate of receipt based on prior experience was estimated at approximately 80 percent of the rate at the point of acceptance. The net difference was then projected over the calculated time period for each group.

Average Rates of Increase or Decrease in Public Assistance Payments After Rehabilitation. Rates for Public Assistance payments are periodically increased to compensate for increased cost of living. The increase is analogous to increases in earnings by workers from year to year. For this study, the rate utilizes the average increase for the nation as compiled by the U.S. Department of HEW. It is approximately 3 percent per year.

Attrition Rate. A low attrition rate is appropriate for Public Assistance Recipients because their recipient status is influenced by death, but not by additional disability. This factor has not been dealt with in the computational formula and the attrition rate being used is the same as for wage earners. This results in a small reduction in the value of the projected savings in Public

Assistance payments. Again, the bias is in the direction of providing a conservative estimate of the benefit/cost ratio.

Increases in Dependence Upon Public Assistance Due to Rehabilitation. A further adjustment is made in this benefit which was previously considered in the model as a cost of rehabilitation. It has been recognized that in some cases persons enter dependency status temporarily to pursue a rehabilitation program. Others, already receiving Public Assistance, may continue to receive Public Assistance in order to complete a training program. The amount to be attributed to this dependence must be considered. Inspection of summary statistics from case records suggests that the numbers of persons receiving Public Assistance during rehabilitation but not at acceptance and closure is very small. An examination of 50 randomly selected case folders for Public Assistance Recipients indicates that the actual numbers of persons receiving Public Assistance because of their VR involvement is, indeed, very low. Further study is being made of this subject.

For this calculation an estimate was made that 15 percent of the number of persons receiving Public Assistance in a population would approximate the number in dependency status in order to receive rehabilitation services. It is believed that this is a most generous estimate, again in the direction of yielding a lower B/C ratio. A more accurate description would be that persons are receiving rehabilitation services because they are on Public Assistance. The calculation utilizes the 16 month period from acceptance to closure and the rate of Public Assistance per month. The net effect upon the B/C ratio is small.

As noted, in the previous DVR B/C study, this item was considered a cost of rehabilitation. From the viewpoint of the State government, it may be considered a cost as the assistance payments are being made by the State. From the viewpoint of the rehabilitation agency, it is viewed as more correct to consider all costs of welfare as measures of dependency. The objective of rehabilitation is to

decrease dependency, and temporary increases in dependency to complete rehabilitation should be deducted from claimed benefits. This method provides a relatively clear distinction between agency costs and agency performance.

C_1 - Program Costs of Vocational Rehabilitation

Estimation of the cost of vocational rehabilitation is considerably more difficult than it would appear to be. An analysis of the true social costs of rehabilitation involves a number of factors other than direct program costs. Conley has attempted to include the following: (1) maintenance and transportation for clients; (2) the number of carry over clients from one fiscal year to the next; (3) the cost of services provided from outside agencies; (4) the cost of clients returning for rehabilitation services after closure; (5) the loss of earnings of clients during the time they are undergoing training and rehabilitation services; and (6) the cost of research, in-staff training, and construction of facilities that are involved in the furnishing of rehabilitation services.

This study is more limited in scope and attempts to reflect only rehabilitation program costs. Two factors are used. They are:

1. The cost of purchased case services per client.
2. A multiplier to approximate counseling, placement, and administrative costs. The multiplier was also adjusted to compensate for the cost of repeat clients.

Case Service Costs. Case service costs per client were determined for this study by review of individual case folders. The costs were tabulated for each respondent and averaged for each population group. Case costs were totaled for both diagnostic and service expenditures. They included medical and psychological services, training, placement and maintenance. The cost of any service or item purchased from outside the agency comprised the case service cost per client. The costs by group are given below. The differences among the groups are substantial. The case service costs do not represent all costs of serving clients, as the costs of counseling and case coordinating are included in the multiplier.

TABLE V-1

CASE SERVICE COSTS BY PROGRAM

Physical Disabled	Mentally Ill	Mentally Retarded	Public Assist.	Workmen's Comp.	All FY 1969 Rehabilitants
$504.54	$376.16	$412.07	$492.36	$352.76	$475.51

Service Cost Multiplier. A multiplier was utilized to relate the cost of purchased services to individuals to the total cost of agency operations. Total costs include expenditures for such items as counselor and administrative salaries and rehabilitation facilities. The relationship between the costs of purchased services to rehabilitants and total agency costs was determined from State Vocational Agency Program Data for Fiscal Years 1968 and 1969 (U.S. Department HEW). The item "Expenditures for Services for Individuals as Percent of Total Expenditures" was utilized for the years 1967, 1968, 1969. The rehabilitants of FY 1969 utilized an average time period of 20 months from referral for services until closure. The total time in service would be apportioned approximately 6 months in FY 1969, 12 months in FY 1968, and 2 months in FY 1967. Weighting the percentages of expenditures for individuals for the three years yielded an average during the 20 month period of 43 percent.

It was also necessary to compensate for the fact that the costs of services to rehabilitants do not constitute all the costs of services to individuals. In FY 1969 costs were also incurred for individuals who were accepted for services but were not rehabilitated, and for individuals who were provided diagnostic examinations but were not accepted for services. Analysis of cost figures for FY 1969 revealed that approximately 78 percent of the funds spent for services to individuals were attributable to rehabilitants. The derivation of this figure is described in Appendix D.

The final adjustment was made for the fact that each year approximately 10 percent of rehabilitants are persons who were formerly clients. If this proportion

is continued, approximately 20 percent of all rehabilitants are or will be receiving duplicate services. Thus, the factor is increased by 20 percent. When costs for non-rehabilitated clients and repeat clients are considered, a multiplier of 3.56 is derived. The multiplier is used for all subgroups of rehabilitants, as there is at present no basis for attributing differential counseling and administrative costs to different client groups.

This calculation resulted in a higher value for program costs than was used in the previous year's study, and provides a more accurate calculation of the B/C ratios. Also, as has been noted previously, DVR is including the costs for all persons served, but is assuming no benefits for persons who have received partial services. This is again an effort to not unduly inflate the benefits derived.

OTHER BENEFITS

The benefit/cost formula used by DVR has been simplified by the elimination of some benefits and costs. It is believed that this results in a more practical formula. It also should be conceptually clear. One of the criticisms of benefit/cost formulas is that they tend to add benefits and costs which share in common only the fact that they are measured in dollars. In other respects, they may be quite different, and lumping them together is like adding apples and oranges. Much of this is avoided by maintaining program costs as the sole denominator in the equation. In addition, the benefits can be considered individually in relation to program costs. They may be considered individual objectives which the agency pursues, e.g., to improve client working status, to reduce dependency upon Public Assistance, etc. Other benefits may be mentioned which should be considered in an evaluation of agency activities. They are not included in the study calculations, but some are listed here.

B_3 - Net Change in Labor Force Participation of Household Members Providing Domiciliary Care to Rehabilitants

This benefit was considered in the previous DVR analysis. It is not used in

the current project because information regarding the variable was found difficult to obtain, and it appeared that it contributed very little to the total value of benefits. Such information as was obtained was difficult to interpret because in some cases family members had entered the labor force due to the increased independence of the rehabilitated person; in other cases, members of the family retired from the labor force because of increased earnings now available from the rehabilitated person. It appeared that the benefit contributed little to the total ratio.

B_4 - Decreased Dependence Upon Institutional Support

It was noted in the analysis that 54 respondents and 100 rehabilitants in the total sample had as their primary source of support at acceptance "Public institution, tax supported." Ninety percent of these persons were in Group 2, the Mentally Ill. Statewide, there were 229 rehabilitants listing this source of support among the FY 1969 rehabilitants. Some of these persons probably could not have left the institution without VR services, and it seems reasonable to assume there is a resulting reduction in costs to the public in having to support these persons. This is viewed as another indicator of agency effectiveness and another economic benefit of vocational rehabilitation.

The average length of time the sample rehabilitants had been in hospitals during the twelve months before rehabilitation was six months. Some had been institutionalized for over 20 years. A review of the records of the 51 respondents in the Mentally Ill group revealed that 24 were in employment at closure and 6 were homemakers. None were in institutions. Almost all of the replies listed one or more services by DVR which were recalled as helpful. DVR sponsored homemaker training for several clients at Pontiac State Hospital.

The Michigan Department of Mental Health has indicated that an average cost of institutional care for the Mentally Ill is $21.60 per day. (Telephone inquiry;

MDMH Research Department) Rates of recidivism were not available. It would seem to be overextending the benefit/cost analysis to project savings in institutional costs for these clients over their working life, but neither is it appropriate to ascribe no value whatsoever to DVR efforts with these clients. The therapeutic value of gainful and rewarding employment is well documented. In order to ascribe some value to the DVR services to these persons, a calculation was made which projected no benefits for future time periods. It merely estimated the savings which have resulted from the fact that the persons gainfully engaged have remained outside public institutions during the case closure to follow-up period. The calculation was made as follows:

$$(N)(C)(Y)(D_B-D_A)$$

Where: N = No. of rehabilitants in a gainful activity 2 years after rehabilitation (employment or homemaker).
C = Cost per day of institutionalization
Y = Years since closure
D_B = Days per year institutionalized in the 12 months before rehabilitation
D_A = Days per year institutionalized in the 24 months after rehabilitation.

The product is: (36)($21.60)(2)(183-0) = $237,168.00

The amount is sizable, over 3 percent of the projected increase in lifetime earnings, and over 8 times the projected decrease in Public Assistance payments for the Mentally Ill sample group. Also, of course, it represents a direct savings of State money. It would increase the benefit/cost ratio for the group by almost one dollar, i.e., the savings calculated for two years very nearly repay the rehabilitation costs for the entire Mentally Ill subpopulation.

Further study is being given to an appropriate way to incorporate this benefit in the existing model.

B_5 - Homemaker Services

In the federal reporting system, the rehabilitation of homemakers and family workers is given equal value with the rehabilitation of wage earners. Yet,

rehabilitations in the homemaker closure status are typically viewed as less desirable than rehabilitation into employment. In the benefit/cost calculations of this agency, the effect of cases in homemaker status is the same as that of cases in unemployed status. For those seeking to examine only relatively current and measurable benefits, this is appropriate. For those who view the homemaker as a vital element in the present and future productivity of families, a very high value should be ascribed to such rehabilitations. Failure to ascribe any value to the homemaker status is most inappropriate.

The Michigan DVR rehabilitates a relatively low proportion of homemakers and unpaid household workers--8 percent in FY 1969 compared with a national average of 14 percent. Yet, there are a sizable number, and it would seem appropriate to make some estimate of the value of such rehabilitations. A single calculation was made utilizing methods used by the U.S. Department of HEW study. Homemakers were rated as earning approximately the same as private household workers. The earnings rate was approximately $40.00 per week. Room and board payments were ignored as they were assumed to be the same both before and after rehabilitation and contributed nothing to differences in the two rates. It was assumed that this level of earnings had been acquired by an increase of the same proportion as the increase in wages from acceptance to closure for employed workers.

Application of this method for the homemakers in this study resulted in the values of homemaker services given below for the several population groups. The values are low, as would be expected with such a low value placed upon the services, and the fact that the method used in this model results in rather moderate estimates of rate increases.

TABLE V-2

B/C RATIOS FOR HOMEMAKERS

Physically Disabled	Mentally Ill	Mentally Retarded	Public Assist.	Workmen's Comp.	All FY 1969 Rehabilitants
1.09	1.62	1.31	2.01	0.55	1.17

The positions regarding homemaker status are varied, and no attempt is made to resolve them here. It should be noted, however, that rehabilitating homemakers is a significant activity of the agency and is not without value.

BENEFIT/COST RATIOS FOR THE PROGRAM

The results of the benefit/cost analysis utilizing only Benefits 1 and 2 are given in Table V-3, page ~~69~~. 75

The ratios indicate that every dollar invested in the vocational rehabilitation of the study clients can be expected to return a much greater value in increased earnings and decreased Public Assistance. The results are similar to all other B/C studies which have been reported in finding a very high return for investment in rehabilitation. It should be remembered that the values obtained are estimates.

The sub-program populations show sizable differences. The Workmen's Compensation group has the highest return, $39.34 for each $1.00 of cost. This is to be expected in view of the pattern of relatively high employment and earnings shown throughout the study plus the low cost to the agency of services to this group. For this group, costs are shared with employers and their insurers.

The Mentally Retarded group showed the next highest ratio despite the fact that persons in this group showed relatively low rates of earnings and employment compared with the other groups. This must be attributed to the fact that increased earnings for this group were projected over almost ten years more expected working life than for any of the other groups.

The Mentally Ill group appears next in order. This is apparently due to the fact that the costs involved in serving these clients are considerably lower than those for serving the Physically Disabled. The agency does not normally purchase treatment services for this group. In addition, it should be recalled that a sizable proportion of these rehabilitants were recently in public institutions which gives added incentive to continue services to this group.

The Physically Disabled derive clear benefits from rehabilitation, and tend to follow closely after the Workmen's Compensation group in post-rehabilitation employment and earnings. However, the costs of serving this group are the highest for any sub-population, and apparently this factor has resulted in a lower B/C ratio.

The sub-population with the lowest benefit/cost ratio is the Public Assistance group. For these persons, case service costs are high, expected working life is relatively short, earnings after services are modest, and employment retention is uncertain. Nonetheless, it should be noted that the ratio for this group is still very favorable. A further point is that almost 20 percent of the benefits derived from serving this group are in direct savings of public funds. From the perspective of the State government as a whole, this fact must be considered of major importance. It assumes added meaning in the light of what has been termed a welfare crisis in meeting burgeoning Public Assistance demands throughout the country.

A point should be made concerning the ratio of decrease in Public Assistance payments to costs of services. The Table shows that Population 4, Public Assistance Recipients, will return in decreased dependence upon Public Assistance approximately 2½ times the value of costs of rehabilitation. This may be considered a measure of DVR effectiveness in assisting persons receiving Public Assistance at acceptance to become independent of welfare assistance.

The values for the other groups are much smaller. This is because the numbers of assistance recipients are small, and because these groups include persons not receiving welfare at acceptance who were found receiving assistance at follow-up. For some groups, e.g., the Mentally Retarded and Workmen's Compensation Recipients, less than 5 persons were receiving assistance at acceptance, so the addition of a few cases of persons who attempted employment and failed results in a negative value for B_2.

The derived ratio for the total rehabilitation program for Fiscal Year 1969 is $25.85 in benefits to $1.00 in costs. This is somewhat lower than in the study of the previous year. At that time a ratio of $32.80 was found. The primary reason for the difference is that the data used in the benefit/cost formula were improved. The cost estimate was recalculated and increased significantly. The ratio is also influenced somewhat by the fact that the employment status of the study rehabilitants was not as good as in the previous year. As noted previously, the rate of unemployment for all Michigan workers was twice as high in December, 1970 as in December, 1969.

A ratio projected for only two years after rehabilitation shows a return of at least $2.43 of value for every $1.00 in costs for all of the sub-programs. Within a period of less than one year, the average rehabilitant has achieved a benefit/cost ratio of 1:1; that is, the economic benefits in terms of earnings and reduced welfare payments equal the cost of all rehabilitation services.

The general conclusion that rehabilitation programs are profitable investments for public funds seems clear.

TABLE V-3

BENEFIT/COST RATIOS

DURING EXPECTED WORKING LIFE	NUMBER OF CASES	BENEFIT/COST RATIO (DOLLARS)	BENEFIT 1 NET INCREASE IN LIFETIME EARNINGS	BENEFIT 2 NET DECREASE IN WELFARE RECEIPTS	COST OF REHABILITATION
1.* Physically Disabled	376	24.88	15,640,014.15	209,965.43	637,129.30
2. Mentally Ill	216	26.31	7,361,151.03	28,179.56	280,859.01
3. Mentally Retarded	277	30.43	11,691,709.85	-29,077.67	383,349.50
4. Public Assistance	232	18.07	5,845,942.78	1,085,897.67	383,632.05
5. Workmen's Compensation	102	39.34	4,875,043.53	-120,356.43	120,843.60
6. All Fiscal Year 1969 Rehabs	---	25.85 (Derived Estimate)			
7. All Fiscal Year 1968 Rehabs (1969 Study)	417	32.80 (Calculated from 1969 formula)			
DURING TWO YEAR PERIOD					
1. Physically Disabled	376	2.69	1,681,442.24	32,854.87	637,129.30
2. Mentally Ill	216	2.98	831,852.16	4,816.57	280,859.01
3. Mentally Retarded	277	3.53	1,359,107.28	-3,721.20	383,349.50
4. Public Assistance	232	2.43	749,353.77	183,354.24	383,632.05
5. Workmen's Compensation	102	4.57	571,496.73	-18,691.11	120,843.60
6. All Fiscal Year 1969 Rehabs	---	2.86 (Derived Estimate)			
7. All Fiscal Year 1968 Rehabs (1969 Study)	417	4.50 (Calculated from 1969 formula)			

*EXAMPLE: It cost $637,129 to serve the 376 physically disabled clients. Over their working lifetime this group will earn $15,640,000. The State Department of Social Services will save approximately $210,000 in welfare funds that will not be needed due to the increased economic independence on the part of these 376 disabled persons. Therefore, in terms of money in the rehabilitants' pockets and reduced welfare cost to the state, the "return on investment" for every vocational rehabilitation dollar for this group is $24.88.

APPENDIX A

SURVEY MATERIALS

STATE OF MICHIGAN

DEPARTMENT OF EDUCATION

DIVISION OF VOCATIONAL REHABILITATION

JOHN W. PORTER
Superintendent of Public Instruction

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Ex-Officio

TO: Persons who have been served by the
Division of Vocational Rehabilitation

Enclosed with this note is a form with your name at the top. It has some questions about your recent employment status.

You are receiving the form because our records indicate you received services from the Division of Vocational Rehabilitation within the past three years. The services were intended to help you in finding a suitable job or in functioning better as a homemaker.

We now need your help in determining if our services were effective, and how they may be improved. Would you please help us by taking a moment to answer the questions? Return them to us in the postage-free envelope. If you need help ask someone who knows you well for assistance.

Your answers will be held strictly confidential. They will be combined with answers from the other carefully selected individuals who have received this form.

Thank you for your cooperation. Your response is very important to us in evaluating and improving our services.

Sincerely,

Ralf A. Peckham

Ralf A. Peckham, Ed.D.
Assistant Superintendent
for Vocational Rehabilitation

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VR-4396
10/70

Michigan Department of Education
DIVISION OF VOCATIONAL REHABILITATION
Box 1016, Lansing, Michigan 48904

FOLLOW-UP SURVEY OF VOCATIONAL REHABILITATION CLIENTS

LABEL

1
10
13

COMPLETE THIS ITEM

Name	
Address	
Telephone AREA CODE/LOCAL NUMBER	

INSTRUCTIONS: Please answer all the following questions. All information will be kept confidential. No employers will be contacted.

1. Mark the sentence which describes your employment status:

14 [1] I am employed
[2] I am a homemaker. I am not seeking employment.
[3] I am not employed. I am not seeking employment.
[4] I am not employed. I am seeking employment.

2. Mark if any of these sentences apply:

15 [1] I am retired.
[2] I am too disabled to work.
[3] I am a student as my primary activity.
[4] None of the above apply.

Describe here if there are other reasons why you are now unemployed _____

_____

3. Answer this question if you are now employed. Please describe your present employment.

a. Do you work at a Rehabilitation Center or Workshop?

16 [1] YES
[2] NO

17 b. [ ] Name of your job or duties _____
18 c. [ ] Month and year you began work for this employer MONTH _____ YEAR _____
d. Your hourly pay $ _____
20 e. [ ] The number of hours per week you usually work _____
21 f. [ ] Your usual weekly pay before deductions $ _____
g. In general, are you satisfied with this job?

24 [1] Very Satisfied
[2] Somewhat Satisfied
[3] Neither Satisfied nor Dissatisfied
[4] Somewhat Dissatisfied
[5] Very Dissatisfied

4. Answer this question if you have held any jobs other than the job described in Question 3 since [ ]

[ ] The date shown above is the date on which your records with this agency were closed. Give the following information for all jobs you have held since that date but do not hold at present. (Do not repeat your present employment).

27 28	NAME OF JOB OR DUTIES	DATES WORKED (MONTH AND YEAR)	WEEKLY EARNINGS BEFORE DEDUCTIONS
		To	$
		To	$
		To	$

5. How many months have you been unemployed: in 1970? [ ]
31 [ ] in 1969? [ ]

6. Are you now receiving Public Assistance (Public or Welfare Assistance includes: Aid to Families with Dependent Children, Aid to the Permanently and Totally Disabled, General Assistance, Old Age Assistance, or Aid to the Blind.)

33 [1] YES
[2] NO

7. If you received Public Assistance AT ANY TIME during 1969 or 1970, please give this information.

34 / 36	NUMBER OF MONTHS YOU RECEIVED P.A.	AMOUNT PER MONTH
For 1970		$
For 1969		$

8. Did you receive Public Assistance during the time you received rehabilitation training or other services?

39 [1] YES
[2] NO

9. Mark if you now receive income from any of the following sources:

40 [1] Social Security Disability Benefits
41 [1] Unemployment Benefits
42 [1] Workmen's Compensation
43 [1] Veteran's Benefits
44 [1] None of the Above

10. What services did you receive from the Division of Vocational Rehabilitation which helped you? (Mark as many as apply)

45 [1] Medical Services
46 [1] Counseling
47 [1] Help in Obtaining a Job
48 [1] Education or Training
49 [1] Other Assistance (Please describe) _____
50 [1] None of the Above

11. Were you generally satisfied with the services you received from the Division of Vocational Rehabilitation?

51 [1] Very Satisfied
[2] Somewhat Satisfied
[3] Neither Satisfied nor Dissatisfied
[4] Somewhat Dissatisfied
[5] Very Dissatisfied

12. Do you need services from the Division of Vocational Rehabilitation at this time?

52 [1] YES
[2] NO

If yes, please explain below.

Please describe here services you need, or add further comments about your employment status or the services you received from the Division of Vocational Rehabilitation. Use the back of the page if necessary.

_____

_____

_____

_____

_____

_____

_____

DO NOT WRITE IN THIS SPACE

53	[1]	M
54	[1]	C
55	[1]	R
56	[1]	T
57	[1]	O
58	[1]	N
59	[1]	P
60	[1]	W
61		W
64		M
66	[1]	S
67	[1]	H
68		O

THANK YOU FOR ANSWERING THESE QUESTIONS. RETURN THE FORM IN THE ENVELOPE PROVIDED.

APPENDIX B

SAMPLE DESCRIPTION TABLES

TABLE B1

MAJOR DISABILITY AT ACCEPTANCE FOR FISCAL YEAR 1969
REHABILITANTS BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Visual											--	6.8	--	6.1
Sample	32	6.6	0	0.0	0	0.0	22	5.7	3	1.9				
Respondents	30	8.0	0	0.0	0	0.0	17	7.3	0	0.0				
Hearing											--	7.3	--	8.3
Sample	49	10.0	0	0.0	0	0.0	19	4.9	2	1.3				
Respondents	32	8.5	0	0.0	0	0.0	11	4.7	2	1.9				
Orthopedic											--	25.9	--	24.3
Sample	183	37.7	0	0.0	0	0.0	119	31.0	120	76.0				
Respondents	140	37.2	0	0.0	0	0.0	75	32.4	80	77.8				
Absence or Amputation											--	5.8	--	6.8
Sample	31	6.4	0	0.0	0	0.0	22	5.7	21	13.3				
Respondents	30	8.0	0	0.0	0	0.0	11	4.7	12	11.7				
Mental Illness											--	12.9	--	12.2
Sample	0	0.0	322	100.0	0	0.0	45	11.7	1	0.6				
Respondents	0	0.0	216	100.0	0	0.0	28	12.0	1	0.9				
Mental Retardation											--	14.3	--	16.1
Sample	0	0.0	0	0.0	356	100.0	13	3.4	1	0.6				
Respondents	0	0.0	0	0.0	277	100.0	5	2.2	1	0.9				
Other											--	27.0	--	25.2
Sample	190	39.2	0	0.0	0	0.0	143	37.6	10	6.3				
Respondents	144	38.3	0	0.0	0	0.0	85	36.7	7	6.8				
Totals												100.0		100.0
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				
Secondary Disability Respondents														
Present	86	22.9	23	10.6	54	19.5	65	28.0	7	6.8	--	20.9	Not Avail-able	
Absent	290	77.1	193	89.4	223	80.5	167	72.0	96	93.2	--	79.4		
Totals	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0	--	100.0		

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TABLE B2

SEX FOR FISCAL YEAR 1969 REHABILITANTS
BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Male											--	62.6	--	59.9
Sample	334	68.8	164	50.8	236	66.3	207	53.9	136	86.1				
Respondents	243	64.5	105	48.3	180	65.2	124	53.5	84	81.6				
Female											--	37.4	--	40.0
Sample	151	31.0	158	49.2	120	33.7	175	45.9	11	7.0				
Respondents	133	35.3	111	51.7	97	34.8	108	46.5	8	7.7				
No Responses														
Sample	1	0.2	0	0.0	0	0.0	1	0.2	11	6.9				
Respondents	1	0.2	0	0.0	0	0.0	0	0.0	11	10.7				
Totals											100.0		100.0	
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				

TABLE B3

AGE AT ACCEPTANCE FOR FISCAL YEAR 1969 REHABILITANTS
BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS.

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0-19											--	32.4	--	31.2
Sample	132	27.3	56	17.5	257	72.2	12	3.1	8	5.0				
Respondents	110	29.3	41	19.1	201	72.5	7	3.0	3	2.9				
20-29											--	27.8	--	26.4
Sample	122	25.2	117	36.0	70	19.7	104	27.1	44	28.1				
Respondents	85	22.6	73	33.8	54	19.6	53	22.8	23	22.3				
30-44											--	22.9	--	23.8
Sample	116	23.9	98	30.6	13	3.7	148	38.7	65	40.8				
Respondents	92	24.5	65	30.3	10	3.6	97	41.9	41	39.9				
45 and over											--	16.9	--	18.6
Sample	93	19.1	42	13.2	3	0.8	99	25.9	33	21.1				
Respondents	72	19.2	30	13.7	2	0.7	64	27.6	31	30.1				
Not Reported											--	--	--	--
Sample	22	4.5	9	2.7	13	3.6	20	5.2	8	5.0				
Respondents	17	4.4	7	3.1	10	3.6	11	4.7	5	4.8				
Totals											100.0		100.0	
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				
Mean Age	31		30		19		37		35		30		30	

RACE B4

RACE FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
White											--	81.2	--	82.2
Sample	387	80.8	278	86.4	242	68.0	280	73.2	126	79.8				
Respondents	319	85.6	192	88.9	180	65.2	176	75.9	85	82.6				
Black											--	18.3	--	17.3
Sample	95	18.6	44	13.6	114	32.0	102	26.6	29	18.4				
Respondents	55	13.9	24	11.1	97	34.8	55	23.7	16	15.5				
Other											--	0.5	--	0.4
Sample	3	0.6	0	0.0	0	0.0	1	0.2	3	1.8				
Respondents	2	0.5	0	0.0	0	0.0	1	0.4	2	1.9				
Totals												100.0		100.0
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				

TABLE B5

EDUCATION AT ACCEPTANCE FOR FISCAL YEAR 1969 REHABILITANTS
BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0-8											--	17.4	--	18.1
Sample	88	18.1	44	13.6	20	5.5	130	34.0	43	27.3				
Respondents	57	15.0	22	10.2	12	4.5	81	35.2	31	30.1				
9-11											--	27.4	--	26.6
Sample	132	27.1	98	30.5	61	17.1	137	35.8	57	36.0				
Respondents	96	25.3	57	26.4	48	17.2	80	34.4	31	30.1				
12											--	38.4	--	38.0
Sample	212	43.8	139	43.2	52	14.8	89	23.2	43	27.3				
Respondents	178	47.6	104	48.2	44	16.0	56	24.1	28	27.2				
Over 12											--	6.6	--	6.3
Sample	38	7.8	36	11.2	1	0.2	15	3.9	12	7.6				
Respondents	31	8.2	29	13.4	1	0.3	9	3.8	11	10.7				
Special Education or Not Reported											--	10.2	--	11.0
Sample	15	3.2	5	1.5	222	62.4	12	3.1	3	1.8				
Respondents	14	3.9	4	1.8	172	62.0	6	2.5	2	1.9				
Totals											100.0		100.0	
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				

TABLE B6

MARITAL STATUS AT ACCEPTANCE FOR FISCAL YEAR 1969
REHABILITANTS BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Married											--	32.2	--	33.1
Sample	181	37.4	76	23.6	15	4.2	175	45.7	116	73.5				
Respondents	139	37.2	51	23.5	9	3.3	108	46.4	78	75.8				
Never Married											--	54.4	--	52.7
Sample	246	50.7	171	53.2	335	94.1	65	17.0	31	19.6				
Respondents	203	53.7	126	58.1	265	95.7	38	16.3	17	16.5				
Widowed, Div., Separated											--	13.3	--	14.2
Sample	58	11.9	75	23.2	5	1.4	141	36.8	11	6.9				
Respondents	34	9.1	40	18.4	3	1.0	86	36.9	8	7.7				
Not Reported											--	0.1	--	0.0
Sample	0	0.0	0	0.0	1	0.3	2	0.5	0	0.0				
Respondents	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0				
Total												100.0		100.0
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				

TABLE B7

RECEIPT OF PUBLIC ASSISTANCE AT ACCEPTANCE
FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM
TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
OAA (Old Age)											--	0.1	--	0.0
Sample	0	0.0	1	0.3	0	0.0	3	0.7	0	0.0				
Respondents	0	0.0	0	0.0	0	0.0	2	0.8	0	0.0				
AB (Blind)											--	0.0	--	0.0
Sample	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0				
Respondents	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0				
ADTD (Disabled)											--	1.1	--	1.0
Sample	6	1.2	3	0.9	1	0.0	38	9.8	0	0.0				
Respondents	4	1.0	1	0.4	0	0.0	20	8.6	0	0.0				
AFDC (Families with Dep.Child.)											--	4.9	--	5.2
Sample	33	6.8	13	4.0	6	1.7	202	53.0	4	2.5				
Respondents	23	6.0	8	3.7	2	0.8	130	56.1	3	2.9				
GA (General Assistance)											--	2.3	--	2.5
Sample	16	3.3	7	2.1	1	0.0	88	23.1	1	0.6				
Respondents	11	3.0	5	2.3	1	0.3	50	21.6	0	0.0				
Other											--	0.9	--	0.6
Sample	7	1.4	3	0.9	2	0.1	32	8.2	1	0.6				
Respondents	5	1.3	2	0.9	1	0.3	17	7.3	1	1.0				
None											--	90.0	--	90.3
Sample	420	86.7	290	90.3	346	97.2	20	5.1	152	96.3				
Respondents	330	87.9	196	90.9	273	98.6	13	5.6	99	96.1				
No Report											--	0.8	--	0.4
Sample	3	0.6	5	1.5	0	0.0	0	0.0	0	0.0				
Respondents	3	0.8	4	1.8	0	0.0	0	0.0	0	0.0				
Total Amount											100.0		100.0	
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				

TABLE B8

REFERRAL SOURCE FOR FISCAL YEAR 1969 REHABILITANTS
BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Education											--	21.3	--	23.9
Sample	76	15.6	14	4.4	199	55.9	9	2.3	3	1.9				
Respondents	60	16.4	14	6.7	162	58.5	6	2.6	2	1.9				
Health											--	21.3	--	23.9
Sample	73	14.9	206	65.0	27	7.6	59	15.4	26	16.5				
Respondents	54	14.8	135	64.0	20	7.3	34	14.7	19	18.5				
Social Security Administration											--	2.4	--	2.1
Sample	15	3.0	5	1.5	1	0.2	8	2.1	11	7.0				
Respondents	10	2.7	3	1.4	1	0.3	5	2.2	6	5.8				
Workmen's Comp.											--	0.2	--	0.3
Sample	1	0.2	0	0.0	0	0.0	0	0.0	5	3.2				
Respondents	1	0.2	0	0.0	0	0.0	0	0.0	3	2.9				
Welfare Agencies											--	7.6	--	8.2
Sample	33	6.7	8	2.5	11	3.1	131	34.2	4	2.5				
Respondents	20	5.5	4	1.8	9	3.2	73	31.4	3	2.9				
MESC											--	10.0	--	11.4
Sample	46	9.4	11	3.4	24	6.8	36	9.4	16	10.0				
Respondents	28	7.7	8	3.8	19	6.9	26	11.2	8	7.8				
Individual or Self											--	16.5	--	18.5
Sample	88	18.0	24	7.6	25	7.0	31	8.1	15	9.5				
Respondents	75	20.5	19	9.1	20	7.2	20	8.6	12	17.7				
Other Source											--	11.0	--	11.1
Sample	68	13.9	21	6.7	16	4.5	38	9.9	54	34.2				
Respondents	46	12.5	8	3.7	11	3.9	23	9.9	33	32.0				
Not Reported											--	9.6	—	0.5
Sample	89	18.3	28	8.9	53	14.9	71	18.6	24	15.1				
Respondents	72	19.7	20	9.5	35	12.7	45	19.4	17	16.5				
Totals												100.0		100.0
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				

TABLE B9

PRIMARY SOURCE OF SUPPORT AT ACCEPTANCE
FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM
TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Current Income											--	20.4	--	20.4
Sample	124	25.6	46	14.3	31	8.7	0	0.0	0	0.0				
Respondents	91	24.3	27	12.5	16	5.8	0	0.0	0	0.0				
Family & Friends											--	54.3	--	54.8
Sample	218	45.0	148	46.0	302	84.8	0	0.0	0	0.0				
Respondents	178	47.2	106	49.1	244	88.1	0	0.0	0	0.0				
Public Assistance											--	8.0	--	7.5
Sample	54	11.1	10	3.1	5	1.4	383	100.0	0	0.0				
Respondents	54	14.3	11	5.1	6	2.2	232	100.0	0	0.0				
Public Institutions											--	4.3	--	4.9
Sample	1	0.2	92	28.6	7	2.0	0	0.0	0	0.0				
Respondents	1	0.2	51	23.6	2	0.7	0	0.0	0	0.0				
Workmen's Comp.											--	3.2	--	1.9
Sample	22	4.5	0	0.0	0	0.0	0	0.0	158	100.0				
Respondents	0	0.0	0	0.0	0	0.0	0	0.0	103	100.0				
Social Security Disability Insurance											--	3.2	--	2.8
Sample	23	4.7	13	4.0	9	2.5	0	0.0	0	0.0				
Respondents	17	4.6	12	5.6	7	2.5	0	0.0	0	0.0				
Other											--	6.2	--	7.2
Sample	43	8.9	11	3.4	2	0.6	0	0.0	0	0.0				
Respondents	35	9.4	8	3.7	2	0.7	0	0.0	0	0.0				
No Report											--	0.4	--	0.4
Sample	0	0.0	2	0.6	0	0.0	0	0.0	0	0.0				
Respondents	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0				
Totals												100.0		100.0
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0				
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0				

TABLE B10

EMPLOYMENT STATUS AT ACCEPTANCE FOR FISCAL YEAR 1969
REHABILITANTS BY PROGRAM. TOTAL SAMPLE AND RESPONDENTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	N %	N %
Competitive Employment											-- 21.8	-- 22.0
Sample	117	24.1	45	14.0	37	10.4	20	5.3	6	3.8		
Respondents	85	22.6	28	13.0	20	7.2	14	6.0	6	5.9		
Sheltered Employment											-- 0.9	-- 1.5
Sample	0	0.0	3	0.9	8	2.2	1	0.2	0	0.0		
Respondents	0	0.0	3	1.4	6	2.2	0	0.0	0	0.0		
Homemaker or Unpaid											-- 4.5	-- 4.2
Sample	28	5.8	13	4.0	11	3.1	31	8.2	1	0.6		
Respondents	20	5.3	10	4.6	10	3.6	22	9.5	1	0.9		
Student											-- 20.1	-- 17.9
Sample	83	17.1	20	6.2	142	40.0	16	4.1	3	1.8		
Respondents	72	19.1	12	5.6	124	44.8	11	4.7	2	1.9		
Not Working											-- 52.7	-- 54.3
Sample	257	53.0	241	74.9	157	44.1	315	82.2	148	93.8		
Respondents	199	53.0	163	75.4	117	42.2	185	79.8	94	91.3		
Not Reported											-- 0.0	-- 0.1
Sample	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0		
Respondents	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0		
Totals											100.0	100.0
Sample	485	100.0	322	100.0	356	100.0	383	100.0	158	100.0		
Respondents	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0		

APPENDIX C

RESULT TABLES

TABLE C1a

EMPLOYMENT STATUS TWO YEARS AFTER REHABILITATION FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	N %	N %
Competitive Employment	240	63.7	113	52.3	151	54.5	104	44.8	71	68.9	61.0	69.8
Sheltered Employment	10	2.7	12	5.6	25	9.0	10	4.3	1	1.0	3.9	3.8
Homemaker	36	9.6	26	12.0	19	6.9	31	13.4	1	1.0	9.5	13.2
Student	7	1.9	6	2.8	6	2.2	2	.8	0	0.0	2.1	1.2
Not Working	83	22.1	59	27.3	76	27.4	85	36.7	30	29.1	23.5	12.0
Totals	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0	100.0	100.0

TABLE C1b

EMPLOYMENT STATUS AT CLOSURE FOR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	N %	N %
Competitive Employment	340	90.4	175	81.0	238	85.9	197	84.9	103	100.0	-- 88.5	-- 86.8
Sheltered Employment	10	2.6	18	8.3	25	9.0	12	5.2	--	0.0	-- 4.3	-- 4.1
Homemaker or Unpaid	26	7.0	23	10.7	14	5.1	23	9.9	--	0.0	-- 7.2	-- 9.1
Totals	376	100.0	216	100.0	277	100.0	232	100.0	103	100.0	--100.0	--100.0

TABLE C2

LABOR FORCE STATUS TWO YEARS AFTER REHABILITATION
FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
In Labor Force	300	78.7	160	72.1	230	83.0	157	66.0	83	80.6	—	78.5	--	78.0
Not in Labor Force	76	20.0	56	25.2	47	17.0	75	31.5	20	19.4	--	20.3	--	18.8
Deceased	5	1.3	6	2.7	0	0.0	6	2.5	—	—	--	1.2	--	3.2
Totals	381	100.0	222	100.0	277	100.0	238	100.0	103	100.0	--	100.0	--	100.0

TABLE C3

REASON NOT IN LABOR FORCE TWO YEARS AFTER REHABILITATION
FOR FISCAL YEAR 1969 REHABILITANTS WHO ARE NOT IN THE LABOR
FORCE BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Homemaker	36	47.4	26	46.5	19	40.5	31	41.4	1	5.0	--	46.2	55	67.9
Too Disabled	28	36.8	23	41.0	15	31.9	40	53.4	18	90.0	—	36.7	15	18.5
Retired	5	6.6	1	1.7	0	0.0	2	2.6	1	5.0	—	5.0	2	2.5
Students	7	9.2	6	10.8	6	12.7	2	2.6	0	0.0	—	10.0	5	6.2
Other and Unknown	0	0.0	0	0.0	7	14.9	0	0.0	0	0.0	—	2.1	4	4.9
Totals	76	100.0	56	100.0	47	100.0	75	100.0	20	100.0	——	100.0	81	100.0

TABLE C4

EMPLOYMENT STATUS TWO YEARS AFTER REHABILITATION FOR FISCAL YEAR 1969 REHABILITANTS WHO ARE IN THE LABOR FORCE

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Employed	250	83.3	125	78.1	176	76.5	114	72.6	72	86.7	--	81.6	308	91.4
Unemployed	50	16.7	35	21.9	54	23.5	43	27.4	11	13.3	--	18.4	29	8.6
Totals	300	100.0	160	100.0	230	100.0	157	100.0	83	100.0	--	100.0	337	100.0

TABLE C5

PERCENT WORKING PART TIME TWO YEARS AFTER REHABILITATION FOR EMPLOYED FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Hours worked:														
35 or more	218	87.2	108	86.4	149	84.6	94	82.5	69	95.8	--	86.7	Not Avail-	
Less than 35	32	12.8	17	13.6	27	15.4	20	17.5	3	4.2	--	13.3	able	
Totals	250	100.0	125	100.0	176	100.0	114	100.0	72	100.0	--	100.0		

TABLE C6

TYPE OF EMPLOYMENT BEFORE REHABILITATION, AT CLOSURE, AND TWO YEARS AFTER REHABILITATION FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	%	N %
Professional-Technical												
Before	7	4.2	3	3.2	0	0.0	1	1.1	0	0.0	3.5	Not Avail-
At Closure	48	14.0	18	9.4	3	1.2	18	8.9	11	10.8		able
At Follow-Up	43	17.2	14	11.2	0	0.0	13	11.4	12	16.7	13.9	
Clerical												
Before	22	13.2	20	21.3	1	2.0	11	11.6	3	5.6	12.6	
At Closure	105	30.7	54	28.1	29	11.4	47	23.3	23	22.5		
At Follow-Up	71	28.4	27	21.6	17	9.7	24	21.0	15	20.8	24.9	
Service												
Before	38	22.9	29	30.8	19	38.0	27	28.4	2	3.7	26.0	
At Closure	56	16.3	58	30.2	96	37.6	38	18.8	12	11.8		
At Follow-Up	39	15.6	42	33.6	57	32.4	27	23.7	2	2.7	20.2	
Skilled												
Before	8	4.8	0	0.0	1	2.0	5	5.3	8	14.8	3.8	
At Closure	44	12.8	17	8.9	19	7.5	22	10.9	22	21.6		
At Follow-Up	24	9.6	3	2.4	5	2.8	8	7.0	11	15.3	7.8	
Semiskilled												
Before	27	16.3	1	1.1	2	4.0	12	12.6	14	25.9	12.6	
At Closure	11	3.2	10	5.2	5	2.0	18	8.9	8	7.8		
At Follow-Up	25	10.0	8	6.4	17	9.7	15	13.1	10	13.9	9.4	
Unskilled												
Before	64	38.6	40	43.6	27	54.0	39	41.0	27	50.0	41.5	
At Closure	79	23.0	35	18.2	103	40.3	59	29.2	26	25.5		
At Follow-Up	48	19.2	31	24.8	90	45.4	27	23.8	21	30.6	23.8	
Totals												
Before	166	100.0	94	100.0	50	100.0	95	100.0	54	100.0	100.0	
At Closure	343	100.0	192	100.0	255	100.0	202	100.0	102	100.0	100.0	
At Follow-Up	250	100.0	125	100.0	176	100.0	114	100.0	72	100.0	100.0	

TABLE C7

REPORTED JOB SATISFACTION AT FOLLOW-UP FOR
FISCAL YEAR 1969 REHABILITANTS

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	N	%	N %
Very Satisfied	112	47.6	44	35.2	66	42.1	47	42.7	19	27.6	--	45.2	
Somewhat Satisfied	60	25.6	38	30.4	50	31.9	27	24.6	22	31.9	--	27.0	
Neither Satisfied nor Dissatisfied	31	13.2	24	19.2	23	14.6	17	15.4	13	18.8	--	14.3	Not Available
Somewhat Dissatisfied	24	10.2	13	10.4	9	5.7	11	10.0	9	13.0	--	9.6	
Very Dissatisfied	8	3.4	6	4.8	9	5.7	8	7.3	6	8.7	--	3.9	
Totals	235	100.0	125	100.0	157	100.0	110	100.0	69	100.0		100.0	

TABLE C8

NUMBER OF JOBS HELD SINCE CLOSURE FOR PRESENTLY EMPLOYED FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0*	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0				
1	160	64.5	62	49.6	100	58.1	74	66.7	43	61.4	--	61.8		
2	55	22.2	45	36.0	50	29.1	22	19.8	20	28.6	--	25.0		
3	23	9.3	7	5.6	15	8.7	9	8.1	6	8.6	--	8.7		
4 or more	10	4.0	11	8.8	7	4.1	6	5.4	1	1.4	--	4.5		
Totals	248	100.0	125	100.0	172	100.0	111	100.0	70	100.0	--	100.0		
Average No.of Jobs	1.53		1.74		1.59		1.52		1.56		1.56			

*Homemaker

TABLE C9

PERCENTAGE OF TIME EMPLOYED BEFORE AND AFTER REHABILITATION
FOR FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	N	%	N %
All Cases													Not Available
*12 months before	297	37.0	200	27.3	163	33.0	214	22.9	100	29.9	--	35.1	
24 months after	375	74.5	215	64.9	275	72.7	229	58.8	101	76.6	--	73.0	
All Cases with Earnings													
12 months before	160	68.8	93	58.7	59	49.0	81	59.1	52	57.5	--	64.6	
24 months after	346	80.8	190	73.5	260	76.9	194	69.4	96	80.5	--	79.3	

*Persons listed as students are deleted from before services calculations.

TABLE C10

WEEKLY EARNINGS PER REHABILITANT FOR FISCAL YEAR 196)
REHABILITANTS AT ACCEPTANCE FOR SERVICES, CASE CLOSURE,
AND FOLLOW-UP BY PROGRAM

	Physically Disabled	Mentally Ill	Mentally Retarded	Public Assist.	Workmen's Comp.	Total FY 1969	Total FY 1968
At Acceptance	$19.27	$ 9.11	$ 5.02	$ 2.72	$ 4.40	$15.93	$15.15
At Closure	85.39	78.55	68.09	63.74	98.65	82.03	75.77
At Follow-Up	79.50	61.50	59.29	49.68	96.49	77.36	80.94

TABLE C11

AVERAGE WEEKLY EARNINGS FOR EMPLOYED FISCAL YEAR 1969
REHABILITANTS BEFORE REHABILITATION, AT ACCEPTANCE FOR
SERVICES, AT CLOSURE, AND AFTER REHABILITATION

	1 Physically Disabled	2 Mentally Ill	3 Mentally Retarded	4 Public Assist.	5 Workmen's Comp.	6 Total FY 1969	7 Total FY 1968
At Acceptance	$ 80.99	$ 66.71	$ 49.54	$ 44.93	$ 50.44	$66.52	$62.68
At Closure	91.51	87.51	71.46	72.88	101.61	84.43	78.73
*After Rehabilitation (24 mo. period)	103.90	90.82	81.40	82.97	119.50		
At Follow-Up	120.05	106.28	93.31	100.23	138.62	114.45	106.81

*Average earnings while working.

TABLE C12

PERCENTAGES OF FISCAL YEAR 1969 REHABILITANTS RECEIVING PUBLIC ASSISTANCE AT ACCEPTANCE, AT CLOSURE, AND AT FOLLOW-UP TWO YEARS LATER BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
At Acceptance	40	10.6	15	7.0	3	1.0	232	100.0	4	3.9	--	9.3	--	9.2
At Closure	19	5.0	8	3.7	2	0.7	80	34.8	0	0.0	--	4.3	--	4.1
At Follow-Up	31	8.3	23	10.7	20	7.2	95	41.3	12	11.6	--	8.4	--	4.0
All Cases	375	100.0	214	100.0	276	100.0	232	100.0	103	100.0				

TABLE C13

SELECTED OTHER INCOME SOURCES REPORTED TWO YEARS AFTER REHABILITATION BY FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969		7 Total FY 1968	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Soc. Security Dis. Benefits	35	9.5	21	9.9	18	6.6	21	9.5	13	12.7	Not Available		Not Available	
Unemployment Compensation	15	4.0	8	3.7	17	6.2	10	4.5	3	2.9				
Workmen's Compensation	11	3.0	1	0.4	4	1.4	2	0.9	25	24.5				
Veterans Benefits	11	3.0	6	2.8	2	0.7	7	3.1	5	4.9				
None	304	82.4	180	84.9	234	85.7	181	81.9	65	63.7				
Total Responding	N: 369		N: 212		N: 273		N: 221		N: 102					

Total Number of Responses May Not Total Number Responding.

TABLE C14

SERVICES RECALLED AS HELPFUL BY REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	%	%
Medical Services	115	31.7	39	18.5	26	10.1	94	42.0	14	14.0	25.9	
Counseling	113	31.1	110	52.1	79	30.7	63	28.1	33	33.0	32.5	
Help in Obtaining a Job	63	17.4	54	25.6	109	42.4	53	23.7	16	16.0	21.0	
Education or Training	150	41.3	93	44.0	109	42.4	92	41.0	31	31.0	41.8	
Other Assistance	43	11.8	18	8.5	5	1.9	32	14.3	7	7.0	9.7	
None of the Above	58	16.0	35	16.6	46	17.9	33	14.7	32	32.0	15.7	
Number Reporting	N: 363		N: 211		N: 257		N: 224		N: 100			

Total Number of Responses May Not Total Number Responding.

TABLE C15

REPORTED SATISFACTION WITH SERVICES FOR
FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	N %	N %
Very Satisfied	206	62.2	95	49.8	95	44.2	114	54.5	39	42.8	-- 58.3	-- 62.8
Somewhat Satisfied	41	12.3	40	20.9	72	33.6	32	15.3	16	17.6	-- 16.6	-- 18.6
Neither Satisfied nor Dissatisfied	40	12.0	26	13.6	5	2.3	34	16.3	9	9.9	-- 10.8	-- 7.1
Somewhat Dissatisfied	23	6.9	14	7.3	7	3.2	15	7.2	9	9.9	-- 6.4	-- 5.2
Very Dissatisfied	22	6.6	16	8.4	36	16.7	14	6.7	18	19.8	-- 7.9	-- 6.3
Totals	332	100.0	191	100.0	215	100.0	209	100.0	91	100.0	100.0	100.0

TABLE C16

PERCENTAGE OF FISCAL YEAR 1969 REHABILITANTS EXPRESSING DESIRE FOR ADDITIONAL SERVICES TWO YEARS AFTER REHABILITATION BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	%	%
Yes	107	29.9	64	31.2	72	29.2	81	36.9	34	34.0	30.0	
No	250	70.0	141	68.7	174	70.7	138	63.0	66	66.0	70.0	
Totals	357	100.0	205	100.0	246	100.0	219	100.0	100	100.0	100.0	

TABLE C17

TYPES OF REHABILITATION SERVICES REQUESTED BY FISCAL YEAR 1969 REHABILITANTS BY PROGRAM

	1 Physically Disabled		2 Mentally Ill		3 Mentally Retarded		4 Public Assist.		5 Workmen's Comp.		6 Total FY 1969	7 Total FY 1968
	N	%	N	%	N	%	N	%	N	%	%	%
Medical	20	16.6	5	7.9	5	6.7	13	15.5	0	0.0	14.0	
Counseling	9	7.5	5	7.9	7	9.5	4	4.7	1	3.2	7.9	
Placement	36	30.0	21	33.4	36	48.6	22	26.2	12	38.8	33.0	
Training	48	40.1	29	46.0	21	28.5	33	39.4	15	48.4	39.2	
Other Services	7	5.8	3	4.8	5	6.7	12	14.2	3	9.6	5.9	
Totals	120	100.0	63	100.0	74	100.0	84	100.0	31	100.0	100.0	

APPENDIX D

BENEFIT/COST MODEL

BENEFIT/COST MODEL

GENERAL FORMAT

$$R = \frac{\text{(Benefit 1 in \$)} + \text{(Benefit 2 in \$)} + \text{(Benefit 3 in \$)} + \ldots + \text{(Benefit N in \$)}}{\text{(Cost 1 in \$)} + \text{(Cost 2 in \$)} + \ldots + \text{(Cost N in \$)}}$$

$$R = \frac{\sum B_N}{\sum C_N}, \quad \text{Where N is any other number benefit or cost}$$

$$R = \frac{B_1 + B_2}{C_1}$$

Where:

B_1 = Net increase in lifetime earnings of rehabilitants

B_2 = Net decrease in economic dependency of rehabilitants

C_1 = Total program cost of case services plus overhead and administrative costs

SPECIFIC FORMAT AND MODEL

Let:

TR = Total number of rehabilitants in sample

αn = Percentage of TR of a particular type closed in t

N = Number of clients of a particular type closed in time period t

t = Time period

N is computed by multiplying the total number of rehabilitants in the sample or group t (TR) by the percentage closed in a particular category (αn), so that:

$N_1 = (TR)\ (\alpha_1)$ = the number of type 1 closures in t

$N_2 = (TR)\ (\alpha_2)$ = the number of type 2 closures in t

$N_3 = (TR)\ (\alpha_3)$ = the number of type 3 closures in t

.

$N_n = (TR)\ (\alpha_n)$ = the number of "nth" type closures in t

and therefore:

$$TR = N_1 + N_2 + \ldots + N_n$$

r = Cost of capital or social time preference rate

B_1

Net increase in lifetime earnings for persons receiving VR services

Let:

Q = Annual income after closure per rehabilitant

Q' = Annual income before receiving VR services per rehabilitant

d = the probability that employment will be terminated because of death and recurring or new disabilities in the "t" th year after closure for rehabilitated clients

d' = the probability that employment will be terminated because of death and recurring or new disabilities in the "t" year for non-rehabilitated clients

g = average annual rate of real wage increase for clients who received VR services

g' = average annual rate of real wage increase for clients before they received VR services

$$B_1 = \sum_{t=1}^{N} \frac{[(Q)(1-d)^t(1+g)^t] - [(Q')(1-d)^t(1+g)^t]}{(1+r)^t} - (N)(Q')(K)(L)$$

Where:

Q = (PWA) (MWWA) (AWWA)

Q' = (PWB) (MWWB) (AWWB)

(PWA) = Percent Working After, i.e., percentage of clients working at closure who received VR services

(MWWA) = Mean Weekly Wage After, i.e., the mean weekly wage for rehabilitants when working during the two years after closure

(AWWA) = Average Weeks Worked After, i.e., average number of weeks per year worked by rehabilitants during the two years after closure

(PWB) = Percent Working Before, i.e., percentage of rehabilitants working during the twelve months prior to application

(MWWB) = Mean Weekly Wage Before, i.e., the mean weekly wage for rehabilitants while working during the twelve months prior to application

(AWWB) = Average Weeks Worked Before, i.e., average number of weeks worked by rehabilitants in the twelve months prior to acceptance

K = Percent receiving training during rehabilitation

L = Length of training in years

B_2

Net decrease in public assistance payments to clients receiving VR services

Let:

M = Number of months clients will receive public assistance during t

P = Average monthly net increase or decrease in public assistance payments from acceptance for services to case closure

p = Average annual rate of real increase in public assistance payments

$$B_2 = \sum_{t=1}^{N} \frac{(P)\ (M)\ (1-d)^t\ (1+p)^t}{(1+r)^t} - (N)(R)(F)(Y)$$

Where:

$$P = \left[(PRAB)(MMAPB)\right] - \left[(PRAA)(MMAPA)\right]$$

(PRAB) = Percentage Receiving Assistance Before, i.e., percentage of client time in which Public Assistance payments are received in the twelve months before acceptance

(MMAPB) = Mean Monthly Assistance Payment Before, i.e., mean monthly public assistance payment received during year before acceptance

(PRAA) = Percentage Receiving Assistance After, i.e., Percentage of client time in which public assistance payments are received the two years following rehabilitation

(MMAPA) = Mean Monthly Assistance Payment After, i.e., Mean monthly assistance payment received after rehabilitation

R = Average number of months that clients receive assistance payments for the purpose of completing a rehabilitation program

F = Percentage of clients who receive assistance payments while also receiving VR services

Y = Average monthly assistance payment received by clients during rehabilitation

C_1

Program Cost of Vocational Rehabilitation

Let:

S = Average cost of case services per client

V = Counseling and Administrative Cost Multiplier: a factor to convert case service costs to total service costs including counseling and administration.

$$C_1 = \sum_{t=1} \frac{(N)(S)(V)}{(1+r)}$$

TABLE

VARIABLES AND DATA SOURCES UTILIZED IN BENEFIT/COST ANALYSIS

Model Variable	Descriptions	Source of Data
TR	Number of Clients in Sample	Follow-up Study
t	Time periods	Follow-up Study
Alpha	Percent of clients closed in t	Sample Number
r	Social time preference rate	1969 DVR B/C Study
d	Attrition rate - rehabilitants	U.S. Dept. HEW Study
d'	Attrition rate - non-rehabilitants	U.S. Dept. HEW Study
g	Rate of real wage increase - rehabilitants	U.S. Dept. HEW Study
g'	Rate of real wage increase - non-rehabilitants	U.S. Dept. HEW Study
PWA	Percent working after rehabilitation (VR)	Follow-up Study
MWWA	Mean weekly wage after VR	Follow-up Study
AWWA	Average weeks worked after VR	Follow-up Study
PWB	Percent working before VR	DVR Case Records
MWWB	Mean weekly wage before VR	DVR Case Records
AWWB	Average weeks worked before VR	DVR Case Records
M	Months clients receive public assistance in t	Constant
P	Monthly net change in PA amount during VR	DVR Case Records
PRAB	Percent receiving PA before VR	DVR Case Records
MMAPB	Mean monthly amount of PA before VR	DVR Case Records
PRAA	Percent receiving assistance after VR	Follow-up Study
S	Average cost of case services	DVR Case Records
V	Cost multiplier	DVR Cost Records
R	Months on PA during VR	DVR Case Records
F	Percentage of clients on PA during VR	DVR Case Records
Y	Average monthly PA amount during VR	DVR Case Records
K	Percent receiving training services	DVR Case Records
L	Length of training in years	DVR Case Records

TABLE

VALUES OF VARIABLES USED IN BENEFIT/COST ANALYSIS

Model Variable	Physical Disabil	Mental Ill	Mental Retard	Public Assist	Workmen Comp	All 1969 Rehabs
TR	376	216	277	232	102	6140
t	30	31	42	24	26	31
Alpha	1.00	1.00	1.00	1.00	1.00	1.00
r	0.06	0.06	0.06	0.06	0.06	0.06
d	0.04	0.04	0.04	0.04	0.04	0.04
d'	0.10	0.10	0.10	0.10	0.10	0.10
g	0.04	0.04	0.04	0.04	0.04	0.04
g'	0.03	0.03	0.03	0.03	0.03	0.03
PWA	0.92	0.91	0.93	0.84	0.97	0.92
MWWA	103.90	90.82	81.40	82.97	119.50	99.14
AWWA	41.58	37.00	39.88	36.30	41.96	39.29
PWB	0.54	0.46	0.37	0.38	0.52	0.50
MWWB	88.18	75.61	39.69	72.90	129.03	89.22
AWWB	35.84	30.55	25.56	30.77	29.94	33.69
M	12.00	12.00	12.00	12.00	12.00	12.00
P	0.03	0.03	0.03	0.03	0.03	0.03
PRAB	0.10	0.07	0.02	0.80	0.03	0.08
MMAPB	131.27	135.46	190.00	128.65	115.33	137.46
PRAA	0.06	0.07	0.04	0.37	0.07	0.06
MMPA	151.42	120.71	110.50	188.92	170.42	141.71
S	504.54	387.16	412.07	492.36	352.76	475.51
V	3.56	3.56	3.56	3.56	3.56	3.56
R	16.00	16.00	16.00	16.00	16.00	16.00
F	0.015	0.01	0.00	0.12	0.00	0.01
Y	131.27	135.46	190.00	128.65	115.33	137.46
K	0.32	0.32	0.32	0.32	0.32	0.32
L	1.33	1.33	1.33	1.33	1.33	1.33

BREAKDOWN OF COSTS OF REHABILITATION SERVICES TO INDIVIDUALS

		Percent
CSI =	$2,630,485	100.0
CR =	2,041,258	77.6
CANR =	442,984	16.8
CNA =	146,327	5.6

Costs of Services to Individuals (CSI) = CR + CANR + CNA

Where: CR = Costs for rehabilitants (26 closures)
CANR = Costs for persons accepted for services but not rehabilitated (28.30 closures)
CNA = Costs for persons not accepted for services (08 closures)

$CR = SC_r + RC_r$

Where: SC_r = Service costs for rehabilitants
RC_r = Referral costs for rehabilitants

$CANR = SC_{anr} + RC_{anr}$

Where: SC_{anr} = Service costs for accepted non-rehabilitants
RC_{anr} = Referral costs for accepted non-rehabilitants

$CNA = RC_{cna}$

Where: RC_{cna} = Referral costs for non-accepted non-rehabilitants

Costs are derived from Tabulations of Characteristics of State Agency Clients - Fiscal Year 1969, Dept. HEW, SRS, April, 1970

The percentage of costs attributable to persons not accepted for services is estimated using data from Tabulations of Characteristics of State Agency Clients - Fiscal Year 1968, Dept. HEW, SRS, 1969

Costs for services to individuals at the State Training Institute and Rehabilitation Center are assumed to be in proportion with other case service costs. The maximum error caused by this assumption is two per cent.

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